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THE JOURNAL

OF

THE ALLIED SOCIETIES

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THE AMERICAN ACADEMY OF DENTAL SCIENCE

THE HARVARD ODONTOLOGICAL SOCIETY

THE METROPOLITAN DISTRICT OF THE MASSACHUSETTS DENTAL SOCIETY
and the
BOSTON AND TUFTS DENTAL ALUMNI ASSOCIATION

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THE JOURNAL

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ETHICS OF THE DENTAL COLLEGE PRODUCT.

As a teacher I have always felt a great interest in the future of the young men, who every year pass out from under my instruction into their professional activities and struggles for identification with the world's work. I love to think and even say, as each succeeding year brings up its applicants for final examination, "Well, here is a class of fine fellows who must make their impress upon dentistry. They're better men than last year's. I think they're getting to be the right sort." Buoyed by hope and pride, I am just drinking in the joy, which is his, who has a part in successful accomplishment, when a grim-faced, pessimistic statistician on my left nudges me and says, "You're o'er-confident in those chaps. Many of them will not practice dentistry at all; they may make a bluff at it, but they'll soon get tired and go into trade; and of those who do practice, some will find employment in advertising offices, some will proudly sandwich their names between the cuts of a set of artificial teeth and an all-gold bridge in a county paper, or seek to startle their communities by hailing the invention of a wonderful obtunder, which they have purchased the exclusive right to use. One will try to get rich quick through the patent office, and instead of being a real credit to his profession because of his ingenuity, will be known and shunned as the pocket patent peddler."

"Hope springs eternal in the human breast." I don't believe a word this Nemesic individual says about the present class, but why have these things ever happened? It has often been charged, that in the curriculum of dental colleges, sufficient emphasis is not given to the teaching of professional ethics. In an experience of twenty-seven years, I have not found it so, but I have found one of the lessons of life, which our Saviour taught us in the parable of the sower, exemplified in the experience of the teacher of professional ethics. Some seed falls upon stony ground and some in thorny places.

Much has depended upon the previous training of the dental college student. We have too frequently found him a man, not a college trained man at that, but a man who has spent his impressionable years in an atmosphere entirely uninfluenced by any ethical formulae other than those known to regulate barter and trade. His impulse too often in beginning a preparation for the practice of dentistry is not to see what he can accomplish in that profession, but to see what he can get out of it, and that without any conception of the rule that the man who puts in the most, shares the largest rewards. Perhaps another not insignificant factor in the result may be the differences in the interpretation of the code by the various teachers of a given school. In the thirty or forty men connected in different capacities with a dental college, there are many grades of opinion as to the right of making claims of superiority for certain personal methods; means of attracting public notice; rights to monetary rewards in inventions, etc., etc. While the curriculum of that college may assign no part in the training of ethics to those who are unorthodox, they yet have their influence upon the student, and too often negate the effect of the authorized teaching. Such men, by breaking down one of the tenents in the code, may create in the mind of the student a demoralization, similar to that produced in the little boy, who, convinced with much effort that Santa Claus was a myth, remarked, "Well, then, it is time for me to look into some of those stories in the Bible."

Improvement must come in the growing demand that those seeking entrance into the professional school shall have spent a longer time in the atmosphere of the college or university, not only that they may be advanced in a knowledge of language and science, which will give them a wider grasp of special training, but that they may bring to its undertaking a broader culture, a greater self-control, and a juster estimate of real values.

The enhancement in the mind of the student of an appreciation of the calling of dentistry becomes the imperative duty of the teacher. No man, however clever, therefore, is a fit teacher unless he has a wholesome love of his calling, a broader grasp of its possibilities, and a genuine ambition to see its votaries plant its flags in the highest scientific, professional, and social places.

A great responsibility rests upon American teachers and practitioners of dentistry; for 'tis here that professional dentistry had its origin, and it is here that the infant has grown to the age of accountability. It rests upon us to transfer the gaze of admiring eyes from the commercial philosophy of David Harum to the life of devotion and self-abnegation of William MacClure.

B. HOLLY SMITH.

A WORD TO ADVERTISERS AND OUR READERS.

Three years ago the Council on Pharmacy and Chemistry of the American Medical Association was formed and at the same time the American Medical Association's Journal came out squarely for ethical medicine, demanding that all future advertisements of remedial preparations in order to appear in their pages must comply with the ten rules laid down by the Council.

Since that time the Council has been analyzing and exposing the medical nostrum, and the Journal has been carrying on an active campaign for ethical medicine, with the result that today, according to a canvas of the Ethical Preparations Committee of the Philadelphia Association of retail druggists and others, there is a decrease of 10 to 60 per cent. in the prescribing of nostrums by physicians of this country.

The California State Medical Association's Journal was the first to follow the lead and now there are a dozen or more professional medical journals that have adopted rules like or similar to those of the Council on Pharmacy and Chemistry, thereby barring the nostrum from their pages.

We think the time has come for the dental profession to take its stand for ethical medicine, and this Journal, which represents the purely professional dental journal, has decided to take its place with the American Medical Association's Journal and others that are opposed to secret preparations.

We have adopted the following rules to apply to our advertising pages for all remedial and prophylactic preparations:

Rule 1. No such article shall be admitted unless its active ingredients and the amounts of such ingredients in a given quantity of the article be furnished. The general composition of the vehicle, its alcoholic percentage, if any, and the identity of other preservatives, if present, must be furnished.

Rule 2. If the trade name of an article is not sufficiently descriptive of its chemical compositions or pharmaceutical character, a descriptive title must be included.

These are practically rules one and eight of the American Medical Association's Journal.

The above rules were adopted by the Massachusetts Dental Society in June, 1907.

So far as we know this is the first dental journal of this country to take this stand. We know that the societies we represent heartily approve of this step. We trust the whole profession will see the importance and necessity of it.

To advertisers of ethical preparations to whom our pages appeal we make the following guarantee. On whatever page your advertisement appears you will know that the opposite page does not display a nostrum.

G. B. SQUIRES,
Of Publication Committee.

THE DEEPENING OF PROFESSIONAL CONSCIOUSNESS.*

BY HENRY H. PIPER, A. B., D. D. S., D. M. D.

I have chosen this subject because it seemed to me timely. Timely it might be and yet not sufficiently interesting or, what is more to the purpose, important to warrant an evening's consideration. Yet I believe it is important, and as worthy a place in the discussions of a society existing to promote the best in dentistry as any of the more practical subjects claiming its attention.

I am aware that it is difficult to read the signs of the times, the trend of events. To attempt to divine the state and progress of one's profession is only another, a larger way, of attempting to understand one's self, a task which is always profitable when kept within due bounds. Nor is there much danger that we shall transgress. Introspection is not a feature of our time. It is well nigh a passion with many to live the outward life of event and bustle, and to have intimate relations with themselves as little as possible. No, we shall not be likely to spend too much time taking our bearings or finding out where we really are. Nor is it an objection that the task has difficulties; in one aspect that is one of the charms of the attempt. There is no disgrace in failure or, at least, in partial failure. In reading the lives of noted men it is interesting to observe the difficulties they find in coming to a true estimate of current events, a difficulty not conscious, but only evident in the issue. The trivial episode, the unfurnished man, the passing policy are often magnified far beyond their importance, while the significent fact, the important movement, the great man, wait long for recognition. How many men estimated that Charles Darwin would be named in after years as the greatest Englishman of the nineteenth century? Wellington, Gladstone, Spencer, Carlyle, Wordsworth, Tennyson, even the good queen Victoria, were much upon the lips of men, and their names live to-day; but there is none of them whose work was so worldwide and so changed the character and thought of human progress as Charles Darwin's. I feel all this very keenly; but I feel also that the attempt to understand always results in good; honest thinking always means advance.

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*Read before the American Academy of Dental Science, Boston, Mass., December 4, 1907.

This theme was suggested to me at a meeting held last year, at Young's hotel, when two questions were brought to the front which had not been so seriously considered before, or at least not to my knowledge. They were not new questions, not absolutely new; many men had had them in mind and had felt keenly the evils which had occasioned their rise, but the time had not seemed ripe for their general discussion. I refer to Independent Dental Journalism, and the examination of the teeth of children in our schools, with a view to some improvement in existing conditions: questons which demanded a quality of loyalty and effort which was somewhat new to many dentists. It was not, of course, the mere fact that these questions were made the theme of the evening, though that was encouraging. It was the spirit and ability with which the discussion was carried forward, and the enthusiasm with which the papers were received. A perfunctory endorsement would not have meant much one way or another, but so hearty an approval by such men as were there gathered was hopeful and might be significant. It showed, at least, on which side sympathy lay.

We understand well enough that no amount of enthusiasm means great and immediate improvement of regrettable conditions, but it may mean the beginning of improvement. Gain is almost invariably slow and it is usually intermittent. Sometimes it seems to be rapid or perhaps too rapid; occasionally it is steady. The slaves in the southern states were freed with a stroke of the pen. Ah, but were they freed? Gain in that temper which is able and willing to cope with new and difficult questions is a slow growth, for it means the new attitude of many minds, and it always gives rise to unexpected perplexities and discouragements. Has our profession reached a point where it is willing to labor and sacrifice along new lines?

The first of these questions might be handled within the profession or certainly within professional interests; it is a matter of enlightenment, of education, a campaign against mercenary conditions which are humiliating to a self-respecting and broad-minded man. And yet one should not use too strong terms, for the present state of dental journalism in America is the natural outgrowth of what has gone before. The business side, the money-making side of many interests in America has grown faster than the ethical and intellectual, and especially would this be true of interests and enterprises born in a business age. The ethics of business is under discussion just now in a somewhat comprehensive way. Every dentist should rejoice in it for it is a part of the deepening of moral consciousness which many believe is to be a characteristic feature of the twentieth century. Some feature this century will have, some new and finer enthusiasm, which will cause the men of the new time to believe, as the men of the nineteenth century believed, that its equal has not been before. I might mention as one of the harbingers of this new enthusiasm in a large way the probable returning to a sister nation by the United States of the unused portion of an indemnity. Other instances of the attempted elevation of business to the simple standards of an honest man will at once occur to your minds. All this is indirectly a gain for the cause of Independent Dental Journalism, for there is never a purging of abuses in one department of life that does not affect every other. Nor need it surprise us that our profession across the water has something to teach us in this regard. It was a part of the weakness and blindness of the nineteenth century in America that it felt it had little to learn. Every man who lived well back in the century just closed knows precisely what the feeling was; but of this I shall speak a little farther on. It is not my purpose to consider in this paper Independent Dental Journalism further than to state that the way the discussion has been received means a new feeling, and that the new movement for the elevation of business morals means a deepening of that feeling.

The second question, relative to the care of the teeth of children, is a somewhat different one; it cannot be kept within the profession. Nor is it so much the changing from a bad method to a good, as a moving out into a new field. It is not a moral question as such questions are usually estimated, but it might become such in effect if there were a failure to advance in a direction clearly indicated by the needs and the standards of the time. Neglect would in time become a serious matter; there is such an expression as criminal neglect. But we are not in that state yet, nor are we likely to be. We are rejoicing in the response made by our profession when such questions are favorably considered. I have said that this question is broader than the other; and it is also more complicated. It requires co-operation as the other does not. School-boards, city governments, legislatures, the dentist, the physician, the parent, the public must all be brought to work together for a new and untried good. There are bound to be delays and discouragements before the full results of this crusade are reached, and it will be a long, long time before all that is in your thought and mine becomes a reality. But the scope of this paper does not include methods or results; it is the enthusiasm regarding these things, the faith in them, the hope for them, the sympathy with them that are its proper theme; or rather that deeper feeling which lies back of them and gives them their validity and worth; the quiet, self-restrained temper that meets discouragement bravely and labors for success persistently.

Another evidence, more definitely professional, more practically so, perhaps, I would bring forward as indicating a finer sense of professional obligation than has been common heretofore. I refer to the large place now accorded to preventive measures. It has been too common in the past to look upon the repair and replacement of diseased and wasted tissues as about covering the field of the practical dentist's activity. Doubtless these will absorb the dentist's activity for a long time to come; but there may be a beginning of better things, a new note sounded, that in time will mean the passing of conditions which now seem a part of the unchanging order. For the first time, perhaps, we venture to hope in a large way that by the dentist's faithfulness and skill in the direction of preventive effort the need for his services will be very much reduced, or, rather, that he may more than ever be in demand, but in a service to a larger number of patients and with far more satisfactory results. This consideration and the older question of repair, wisely and persistently pressed upon the public attention, will meet a hearty response. First of all they appeal to self-interest; prevention is better than cure, though men have been slow to learn the lesson. But self-interest is not all; the public is unselfish as well as the dentist and perceives the larger good. The physician also will respond and co-operate. Prevention with him occupies an ever enlarging place in his professional interests. Isolation in infectious diseases, precaution in tuberculosis, pure food laws, the inspection of milk and the careful watch kept on water supplies are but samples of the ways in which the locking of the stable door in season prevents loss.

We are tempted to ask, whence come these new ideas? To whom shall we give the credit? We trace back the influence to scientist, preacher, educator, philanthropist, physician, dentist, the public, but we nowhere find a comprehensive or ultimate source. James Martineau in one of his discources says, in substance, that every movement looking toward progress springs from the passion for service in the reverent heart. Perhaps we can do no better than accept that conclusion of a great thinker. Somewhere I have read that no better source can be found for that wonderful movement known as the Italian Renaissance, and all that has come out of it, than the great loving heart of St. Francis of Assisi. Through many streams of influence, far removed in some instances, he, more than any one else, was the inspirer, of Dante, Michael Angelo, Luther, Cervantes, Shakespeare, Lincoln, and Pasteur.

Partly from the spirit of the times, partly from its effort to know its place in the social order, modern dentistry finds itself, as I believe, never so truly master of itself as now; never so willing to serve in the best possible way; hailing each new method as meaning a possible advance in technical skill, and rejoicing in whatever seems a broadening of the horizon. Not that this is the first deepening of the professional consciousness, though it is perhaps the most noteworthy; it is a step in a process; the future will leave our best thinking far behind; but it is a splendid result so far, and we have a right to estimate it at its true worth.

The life of a profession is, in many important particulars, like the life of an individual. There is a birth, an early growth more or less unconscious of itself, a time for education, a time for higher and more definite education, and a great awakening of all the faculties; the deeps of the spirit are stirred; there are dreams, hopes, plans; a looking forward to a splendid future; then the true life work begins, with trial, difficulty, disaster and discouragement, mingled with the joy of success and a sense of the worth of living. With the normal man I believe there should be an ever increasing sense of the worth and the possibilities of life; but the man dies and is forgotten. The life of the profession goes on, rising higher and higher, and for its close no time is set. Now the dental profession, as I conceive it, has reached a period corresponding to the early manhood of the individual; it has reached its majority. It has passed through the embryonic state, a long one in this instance, dating from ancient Egypt and Etruria, and has been definitely born; though at just what time in the nineteenth century the birth as a profession took place I will not pretend to say. Following the birth there has been a period of development, of education, in which the mastery of implement and method has been carried far; there has come in a conception of large service, unselfish devotion and loyalty, and a gradual awakening to the fact that the future will be greater than the past, and a cherishing the hope that the achievement of the future may be of such a nature as partly to render unnecessary that perfection of appliance which we now look upon with such approval. It is a far look but not unprofitable.

For the better illumination of this portion of our subject let us take a more searching look into the past. The birth of dentistry was in the nineteenth century, and nearly all which marks the profession as different from a trade or business dates from the last third of that century. Rare skill there was before 1860 but it was found in individual men who felt few of the bonds which hold men together in the consciousness of a great calling. During the last third of the century there was such a reaching out into new fields and such an acquisition of skill in them that it was not uncommon to conceive of the future as yielding little more than the maintenance of existing standards. And what a century was the nineteenth to meet the needs of technical development. Those of us who lived longest in it and drank to the ful of its wine of self-gratulation know how great the time seemed to us; there was never such a century from the dawn of history; what inventions there were; how we rung the changes on the electric telegraph, the locomotive and the steamship; what development of resources, what accumulating of wealth; and last of all came the phonograph, the telephone, and the day of electricity. We were not displeased, or many were not, when some one on the other side of the water, a Frenchman I think, allowed that America was supreme in two particulars, mechanical ingenuity and the accumulation of wealth. The irony of that remark we partly missed. We should resent it now; the century was morally great as well as materially. Lincoln lived then and we remember him as the most fitting representative of that time. But here it is my purpose to emphasize the material, the spell it wove about the lives of men, and to show the part it played in the growth of our profession. Dentistry came under this spell; it grew very skillful and the reputation of the American dentist became world-wide. It was not a favorable time for the deepening of professional consciousness.

And yet we must find in those years the causes of that deepening; the temper of the twentieth century will not entirely explain it. We have missed something in our survey; indeed we have missed much. I have referred to the individualism of fifty years ago. There came a great change later when societies were organized, dental schools started, and many men came together in conventions. Even earlier than this the Harvard Medical School, and possibly other institutions for definite training, left their influence with a few, and a most valuable influence it was. Little by little the old conditions passed away, some *esprit de corps* was evident, jealousies were reduced, professional friendships and fellowships were highly prized; there was more of loyalty, for at last there was a profession, a cause, to which to be loyal, and there was more interest in, more means for, a broad and sufficing education.

These things were not so much discussed as "How to do," "How to accomplish;" but the influences were there and the good work went on silently. The merging of the Boston Dental College in Tuft's College, in 1899, fittingly closed an important series of changes during the previous thirty or forty years which had established modern dentistry in New England.

This has been a hasty survey and yet, perhaps, comprehensive enough when our object is not history but the source and path of influence. I have reserved a little space for one more factor in change and growth, closely related to those just considered, and yet distinct from them. I refer to those unseen forces, those inner workings of mind and spirit which are often more potent in shaping life and history than those which are acknowledged. If these factors were a mere element of chance in our lives, entirely apart from our own willing, they would properly have no place in this discussion; but they are not mere chance, and they are to some extent subject to the individual will. Have you not given your mind a problem to solve as you lay down to sleep, and was it not waiting for you, all worked out when you waked? Have you not given your brain a date to recall as you closed your eyes, and have you not found it ready in the morning? Or have you not found yourself the possessor of some new taste which you never consciously cultivated, some power to judge which seemed like a gift to you, or the loss of some taste which you do not well understand? Charles Darwin says in his autobiography that he found in later years that he had lost his former taste for music, even his delight in beautiful objects, through his neglect to cultivate these things.

To him that hath shall be given and from him that hath not shall be taken even that which he hath. Changes in our professional methods, in habits of life, in the quality and standards of our associates are felt not only along these definite lines, but in other ways. We cannot definitely will growth, but we can will those things which make for growth—faithfulness, joy in work, high ideals, the forward look; and the growth which springs from these conditions is beyond belief; there is in them the working of the unseen which cannot be predicted nor measured. In some such way we may explain in part, at least, the joy and the charm of life which at times seem so spontaneous. So may it come about that many a man past fifty finds a rarer appreciation of friendship than he has before known, and feels a new and deeper delight in books, art, nature, his profession and every service. The dentist, faithful, loyal to his calling in what he understands to be its larger aspects, not slighting skill, with a genuine joy in work well done, making dentistry the main thing but with a mind and heart open to other interests, finds, when brought face to face with such questions as those which were mentioned at the beginning of this paper, that he is in hearty sympathy with them and is willing to work for them. This sympathy was never directly willed; it grew from sources that were adequate; and how much of what is most beautiful in the personality of the true dentist is never directly willed. We have all known this true man, all admired him. He made no parade of skill, learning or professional standing. He was the most modest man among us; he was largely unconscious of his true worth. He was conscious of certain ideals and principles; he lived for them; but as always happens in such instances, the atmosphere he carried with him into every place he knew not of; the very genuineness of his sense of shortcomings shed its lustre. The best man in every calling, having a finer sense of what might be and will be, is the one to feel most keenly how far accomplishment lingers behind ideal, but he is not less quick to feel every advance, for his place is in the fighting line. Sure of his mission, with a broad horizon and definite convictions, with the human touch and let us say a spice of humor, loyal to his profession, and loyal also to the spirit of loyalty, and lastly reverent, toward himself and toward the deepest that he knows—this man is our ideal and as truly our real dentist. How better than with the thought of him can I close this paper.

INVETERATE TIC DOULOUREUX AND ITS TREATMENT.*

M. B. SWIFT, M. D., FALL RIVER, MASS.

If any apology is needed for the reading of this paper, it may be found in the conditions of the mouths of the patients who come to the surgeon for relief from the insufferable pangs of Persistent Trifacial Neuralgia.

In caring for several patients, on the service of Dr. Robert Abbe in St. Luke's Hospital, New York, and for one of my own, I have been impressed with the fact that they are all toothless. They were made so by the anxious endeavors of well-meaning dentists.

The disease itself is easily recognized. The face-splitting, nerve-racking pains, crashing through the head of the patient, and the quivering cheek, cause the tears to flow, the saliva to increase, the jaw to become motionless and holds the patient in a vice. At first it is infrequent, but gradually it increases in frequency till it may occur every four or five minutes, rendering a useful citizen a mere animated mass of humanity.

The drug market has been searched and scoured, and drugs from the strongest hypnotics to the strongest stimulants have been used. We have used hyocine, morphine, atrophine, strychnine, aconite, quinine, aspirin phenacetin, antipyrin, caffeine, hyocyamus, and gelsemium. But why enumerate? None are effective. The patient leads a life of misery.

The cause of Tic Douloureaux is still sub judice. That it is a neuritis cannot be questioned. The dentist is blamed for many cases, many times unjustly. Decayed teeth or teeth improperly cared for have been suggested. It is reasonable to suppose that any cause of a localized neuritis may affect this as well as other nerves.

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*Read before the Harvard Odontological Society, December 9th, 1907.

When all branches seem to be involved, it has been conclusively proven that the disease is seated in the two maxillary branches and the pain referred to the first branch is in reality a referred pain or else always starting from the irritation of the other branches.

This being so, our efforts must be to treat the second and third branches successfully, and in successfully treating these branches we accomplish all that good surgery requires. The chief point in the treatment is to render relief permanent.

Perhaps the first surgical procedure attempted was the extraction of teeth. This, as I indicated in opening, should never be performed with the idea of permanently alleviating the pain of the sufferer, as it seldom accomplishes its aim, and puts the patient under great difficulty in maintaining nourishment. It is to be condemned.

The superficial resection of the infraorbital has been condemned from the earliest times, and the more recent osmic or other acid injection is but little more advantageous, except in aged people, who are unable to stand the shock of the more severe procedure. The operative advance in treating this affection is one of the prettiest exhibitions of surgical endeavor demonstrable. To attempt to any more than touch upon the history of the efforts of surgery for the sufferer from this affliction would be foolhardy in this paper.

In 1851, Carnochan first performed a radical operation for 'Inveterate Tic." He traced the infraorbital branch back from the cheek, through the roof of the antrum and severed it in the spheno maxillary fossa, destroying at the same time the otic ganglion.

It was Carnochan who led the way and since the publication of his monograph in 1858, numerous attempts have been made to improve on this procedure with questionable results By all "external" methods recurrence is not to be reckoned as impossible. The scar following external operations is usually disfiguring and to-day the operation is hardly justifiable Recurrence takes place from two months to two years

The object of all external operations is to render impossible the regeneration, distally as well as proximally, of the nerve involved. The farther back, or deeper the destruction, the less the chance for regeneration.

From this observation, Hartley and Krause were led to attack the Gasserian ganglion, and in destroying this effectually, prohibited the regeneration of the nerve fibres. The difficulties of this operation are great and its mortality high. Lexer and Turck, in 1902, published the results of all the then reported cases of this operation, giving a mortality of 16%. And this operation is at times unsuccessful, as, if there is a single thread of the ganglion left undestroyed, the pain recurs.

After many years of research work, that master surgeon, Dr. Robert Abbe, of New York, became convinced that the entire trouble lay in the second and third branches in their respective canals, and endeavored to find a method of operating which should be permanent in its effects and of less risk to the patient.

In a report of a certain case, Dr. Abbe tells of his being weaned from the ganglion operation by the severity of the hemorrhage. He then contented himself by removing as much of the nerve as possible from the foramina ovale and rotundum, and from the Gaserian ganglion, and of placing between the severed ends a piece of gutta percha tissue, large enough to completely separate the ganglion and dura from the distal portions of the nerve branches.

This case was operated upon twelve years ago, and remains relieved.

Having used the gutta percha tissue, Dr. Abbe became interested in the possibility of its being absorbed or perforated and through experiments on animals found it neither destroyed nor altered. He found that taken fresh from its package it was sterile, but he added sterilization with bichloride or alcohol as a further precaution.

Since this operation, there have been modifications, some of which have improved the procedure, others detracting from it. The chiefest addition is, I think, due to Dr. Mixter, of Boston. This is to make of the gutta percha tissue, small wads, which are used to plug the foramina.

The procedure is as follows:

The patient is prepared by shaving about three inches on all sides of the zygoma of the affected side. The patient being anesthetized, the field is sterilized as much as possible with alcohol and ether, half and half. An incision, two and one-half inches long is then made, directly above and perpendicular to and reaching the middle of the zygoma. This is carried down to the periosteum, through skin fascia and muscle. The soft parts are then dragged aside and the periosteum incised in a like manner. This incision severs no important blood vessels and there is but little bleeding except from the periosteum, which is venous and easily controlled by pressure.

With the chisel and hammer or trephine, the skull is opened just above the zygoma and the opening enlarged to about one and one-half inches in diameter with ronjeur. The dura is then worked loose, quickly but gently, from the middle fossa and the second and third branches quickly exposed. In loosening the dura, sudden hemorrhage may take place from the middle meningeal artery, but is usually easily controlled by pressure or plugging the foramen Spinosum. The hemorrhage having ceased, the third branch is grasped by a clamp and cut close to the foramen ovale and then either evulsed from or cut from the ganglion, one-quarter to three-quarters of an inch being excised. The same procedure takes place with the second branch. The bleeding having been controlled with small gauze strips and the field being dry, small pieces of sterile gutta percha tissue are taken from warm sterile water and rolled into wads and the foramina plugged tightly with them by means of a dental instrument. Over these plugs is placed a single layer of the same substance. In doing this it is important to see that the tissue comes in contact with the dura on all sides of the severed nerve ends. This tissue becomes adherent to the dura and as it is not absorbed, forms a barrier to possible reunion of the severed ends of the nerve branches.

The wound being clean, the tissue in place, the foramina plugged, the dura and brain is allowed to settle back to their original position.

It is necessary to be careful that too severe pressure is not used in elevating the brain.

The wound is then closed by interrupted catgut stitches, and a small drainage tube is inserted in the lower end to allow exit to the serous exhudate. The skin is closed with silk, or better, catgut subcuticular suture. A moderately tight pressure bandage is applied and the patient placed in a bed in the semi-recumbent posture.

In from six to ten days the wound is healed and the patient may be discharged without fear of recurrence.

This operation has the following advantages over the ganglion operation. The operation is about half as long. The danger from hemorrhage is much less. The shock often met with in the ganglion operation is almost totally lacking. The laceration of the dura necessary in a ganglion operation is entirely obviated. The risk of brain abscess or infection is far less. The brown softening due to pressure is avoided. The after-results are far better, in that as the first branch is not disturbed, there are no eye troubles, which almost invariably follow the other operation. The cosmic effect is infinitely better.

CONCLUSIONS.

All superficial or external operations are to be condemned as the relief is at the most temporary, extending over from but three months to two years.

The extraction of teeth is useless and harmful, as it prevents the patient from properly nourishing himself, and does not relieve his suffering.

The ideal operation is the "Intra cranial resection of the second and third branches with the plugging of the foramina with gutta percha tissue, and the interposition of gutta percha tissue between the foramina and the ganglion," and should be resorted to by competent hands, without dalliance with other methods.

DENTAL CARIES AS A FACTOR IN THE ETIOLOGY OF OTHER DISEASES.*

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That diseased teeth are a cause of other diseases of the human body is a fact long known to medical science, but that the control of these dental diseases is a factor in preventive medicine worthy of attention is apparently not generally recognized.

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* Read before the American Academy of Dental Science, January 1, 1908. By request of the Boston Society for the Relief and Control of Tuberculosis, these illustrations and quotations from the text have been incorporated in their public exhibition. Published simultaneously with the Boston Medical and Surgical Journal.

It is the object of this paper to call attention to the significance of dental caries, the most prevalent disease that attacks man, as an etiological factor in the development and spread of contagion and in the development of other systemic disturbances.

The illustrations that accompany this article help to show how dental caries, or tooth rot, is a medium for the development and spread of disease. Figure 1 exhibits a carious tooth in section. The disease has attacked and broken down the enamel, invaded and destroyed a portion of the dentine, until the body of the tooth is badly undermined. The large retentive cavity which is thus formed is filled with both decomposing food and decomposing tooth substance. In teeth thus affected we have probably the most perfect conditions within the human body for the development of bacteria; in fact, these carious teeth are perfect culture tubes with all the requirements for the cultivation of germ life, for here are heat and moisture at body temperature, and an abundance of culture medium. These carious cavities, these culture tubes, are wide open for contamination by all forms of bacteria that find entrance to the mouth—"the vestibule of human life." Furthermore, these stagnant pools are stock-cultures for the development of millions of disease-producing germs, which continually drain further into both the alimentary and respiratory tracts, endangering the health of the particular individual in proportion to his lack of resisting capacity. Figures 2 and 5 are microscopic views of specimens of this culture medium.

In these days of eternal vigilence against germ diseases, no such unsanitary conditions as these would elsewhere be tolerated; yet the foul conditions shown here are no exception to the conditions existing among the masses, where contagious and other diseases are most prevalent. Not only are these oral conditions a menace to the health of the individual, but they serve as a vehicle for the spread of contagion. According to Hermann Koninger in the *Journal of Hygiene and Infectious Diseases,* "a person coughing or sneezing can scatter germs to a distance of more than twenty-two feet. Germs are scattered through the air by means of salivary droplets. These droplets are really microscopic balloons, having a bubble of air in the centre, and remain in suspension for a short time. The dissemination of droplets, with their germ-originating capabilities and tendencies, is most marked during coughing and sneezing. The more path-

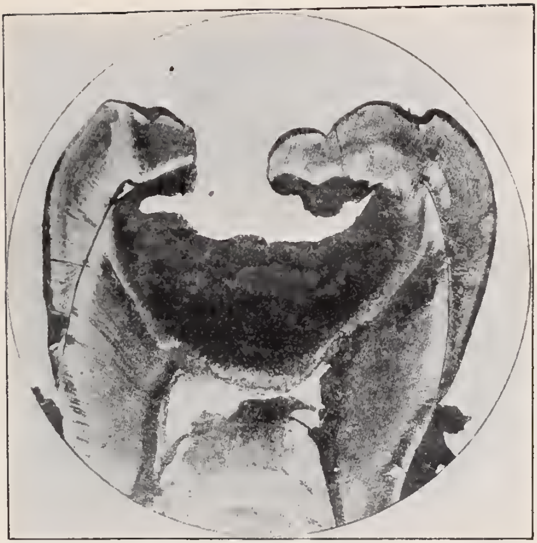

FIG. 1. "Undermining caries; destruction of tooth substance from within." (From "A Study in Pathology of the Teeth." By W. D. Miller, M. D., D. D. S., Ph. D., Sc. D., Dental Cosmos, January, 1905.)

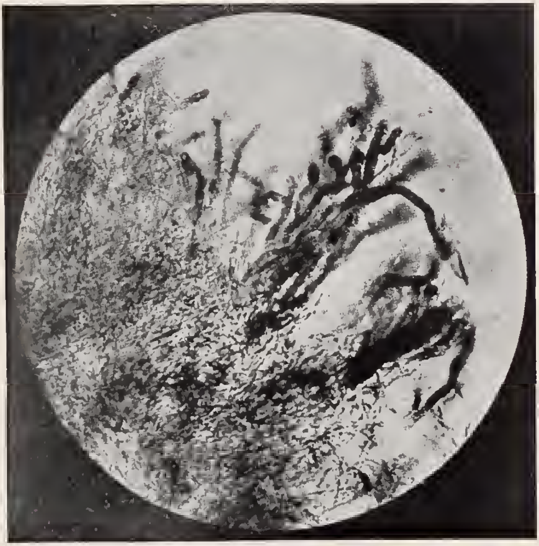

FIG. 2. A microscopic view of culture medium from a carious tooth, stained to show leptothrix racemation, a lactic acid producing bacteria and an important element in causing dental caries. (Illustration by J. Leon Williams, M. D., D. D. S., from "Marshall's Operative Dentistry."

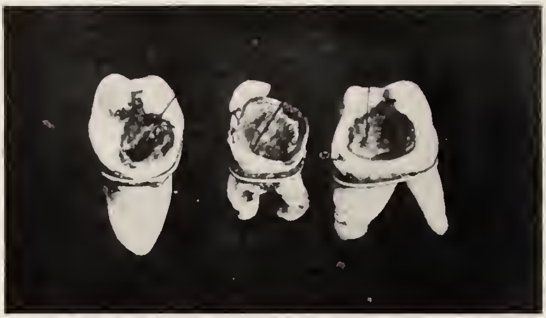

FIG. 3. A few varieties of human culture tubes. (From the clinic of the Harvard Dental School.)

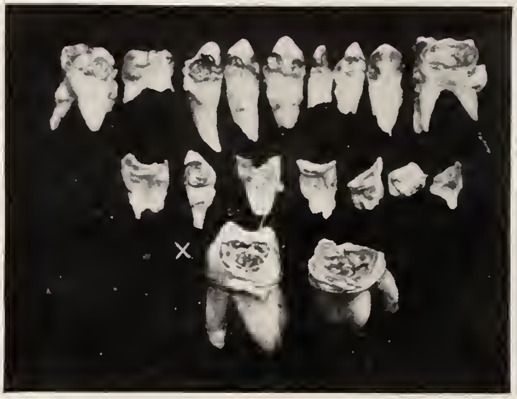

FIG. 4. The nine-year-old boy, from whom these septic teeth were removed, has within the last three years been attacked by diphtheria and scarlet fever.

Has this infected area an influence in the causation of these diseases? (From the clinic of the Harvard Dental School.)

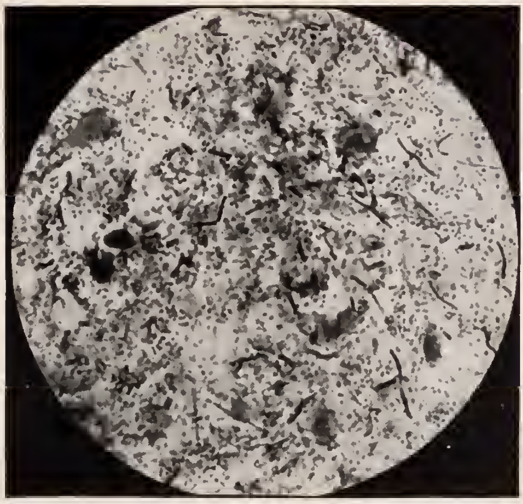

Fig. 5. A microscopic view of the food from a carious cavity. (See X in Fig. 4.) This illustration shows staphylococci, streptococci, diplococci and several bacilli, also epithelial cells. (Specimen prepared by C. W. Staples, D. D. S., and photographed by the Pathological Department, Harvard Medical School.)

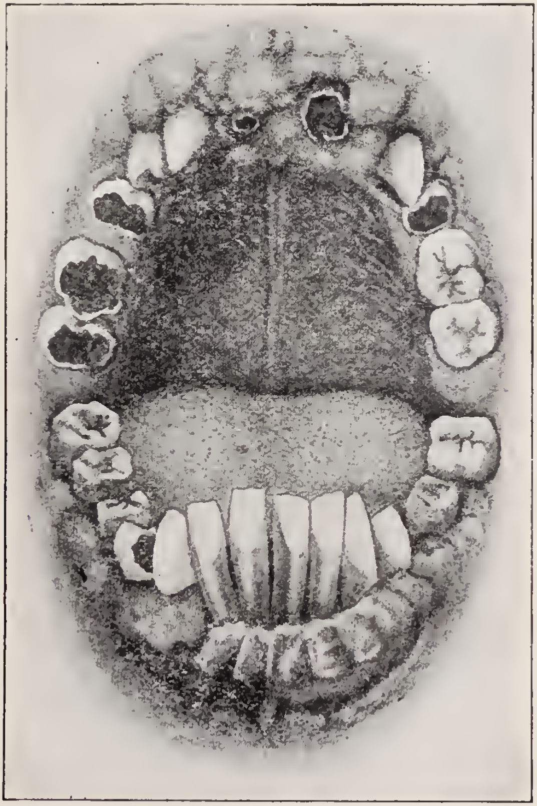

Fig. 6. The process of mastication is the key that unlocks nutriment from food. Poorly chewed food decomposes in the intestines and causes self poisoning.

Dental cripples cannot absorb the full nutritive value from their food. (Illustration from "Zahnhygiene in Schule und Heer." Professor Jesson.)

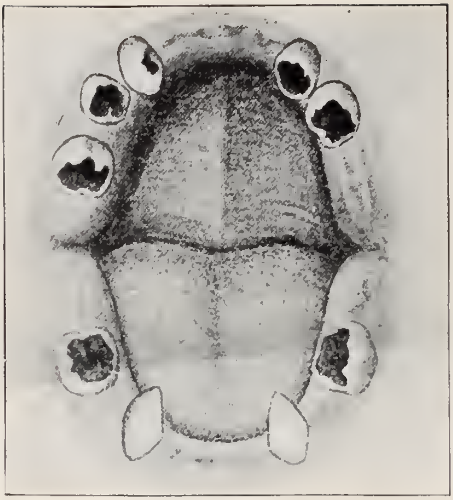

FIG. 7. The putrid condition of these temporary teeth invites tuberculosis, diphtheria, scarlet fever and other contagious diseases.

These little dental cripples are forming wrong life habits of eating, which seriously interfere with their nutrition. (Illustration from 1902 Report of the City of Strassburg, Public Dental Clinic.)

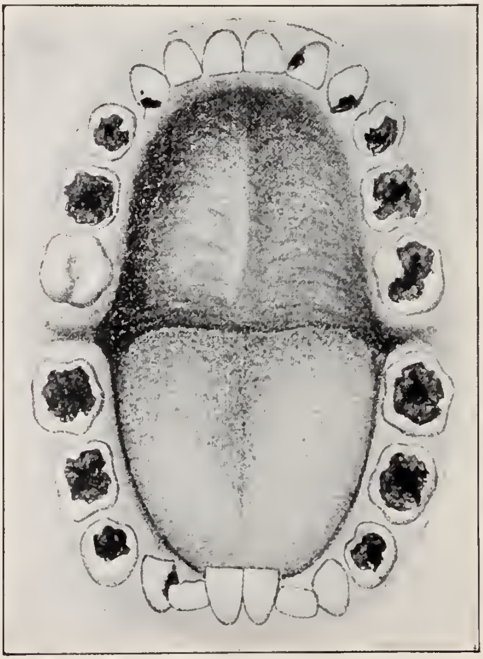

FIG. 8. Accompanying such destruction there is a swelling of the glands of the neck and a fetid odor from the breath—the result of self-poisoning.

When dental inspection is established in the school systems these human culture tubes will disappear. (Illustration from 1902 Report of the City of Strassburg, Public Dental Clinic.)

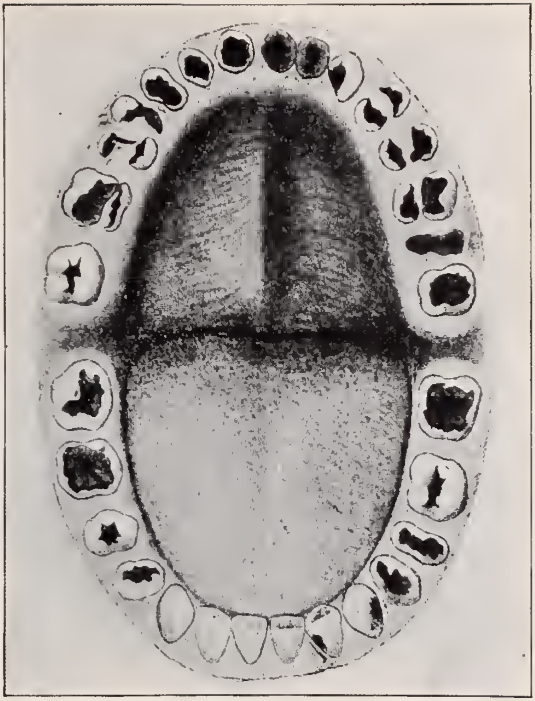

FIG. 9. Such conditions are a check upon the physical mental and moral development and are far-reaching elements in preventing these unfortunates earning good livings. Dental caries or tooth rot is a problem of civilization. (Illustration from 1902 Report of the City of Strassburg, Public Dental Clinic.)

ogenic microbes the mouth contains, the greater the danger of infection. Washing the mouth has the effect of decreasing the diphtheritic and other bacilli susceptible of being detached."

Figure 3 is a photograph of several specimens from the clinic of the Harvard Dental School, which are typical of the progress of dental caries in uncared-for teeth. Note the characteristic undermining of the enamel and the consequent retentive shape of the cavities, the nature of which causes pieces of meat, fish and other food debris to stagnate and become putrid in these pockets. Terming these carious cavities human culture tubes is in no sense an exaggeration.

From the specimens shown in figure 3, it is easy to see how the disease has penetrated to the dental pulps. These have consequently become infected, and the result is gangrene of the pulp and the formation of pus. Gangrene of the pulp is the usual cause of dental or alveolar abscess, probably the most common form of abscess that attacks the human body. Although it is so common that it almost loses its significance as an abscess, nevertheless it is a true bone abscess, of streptococci and staphylococci infection of the most virulent type. Illustration number 5 is a microscopic views of a specimen of decomposing food retained in an abscessed molar of a child. This specimen clearly shows how infiltrated the retained food became with pyogenic organisms. The pus products from these abscesses, and from pyorrhoea alveolaris, in addition to the other pathogenic germs and germs of decomposition propagated in these carious cavities, make a mixed infection which continually drains into the intestinal tract. Among other pathogenic tendencies, this infection is an important, but generally overlooked, element in causing decay of food within the body, the poison from which is the direct cause of many grave and far-reaching diseases, as gastric catarrh, appendicitis, anemia, nervous debility and other diseases, the common etiological factor of which is the decomposition of food within the alimentary canal. Physicians as well as dentists are more than ever realizing the importance of an efficient masticatory equipment in preventive medicine. So eminent an authority as Sir Frederick Treves, surgeon to King Edward, has placed himself on record in regard to this matter by the following:

"Defective masticating teeth are exceedingly common among the subjects of appendicitis, and especially among those who have passed the period of youth. Over and over again it would appear as if the want of proper and efficient teeth had been the direct cause of the attacks. Such patients often bolt their food, and such meat as they eat can hardly reach the stomach in a condition fit for complete digestion. The bolus passes into the bowel still ill-digested. It fails to stimulate normal peristalsis; is prone to lodge in the great receptacle, the caecum, where it decomposes, and, if there be any existing lesion of the appendix, must tend to encourage the morbid change."

A case coming under the observation of the writer in the clinic of the Harvard Dental School serves as a practical illustration of the far-reaching effects of oral sepsis——Boy nine years of age. During last three years he has been attacked by two contagious diseases, scarlet fever and diphtheria, and has been unable to attend school; has been subject to frequent attacks of bronchitis. His cuts heal with difficulty; small wounds become infected readily. Last summer he was severely infected by getting a sliver into the sole of his foot. An oral examination revealed a shocking dental condition (see Figure 4), there being a series of broken-down, carious and abscessed septic odor. This dental conditon was associated with a swelling of the glands in the neck, on the right side of which there had been a glandular break-down, as indicated by the characteristic scar.

A minute dental examination revealed two or three exposed, or partially exposed, pulps. Eight or nine dental abscesses were also observed. On freeing the debris from the openings into the root canals of two of these abscessed teeth, a copious discharge of yellowish white pus gushed out; pressure about the other abscesses caused pus to well up through the cavities in the teeth or roots, and in several places this pressure caused a discharge of pus from about the sockets of the teeth. Smear preparations were taken of this pus, and a microscopic examination showed it to be teeming with streptococci and staphylococci; in fact, it was difficult to find anything else but pus germs. Smear preparations were also taken from the food contained in several cavities (Figure 5). In these the pyogenic germs were also found in great numbers, as well as several varieties of bacilli. The boy subsisted only on the softest food, and with his meals he drank a great deal of liquid food. His mother said that he had a peculiar habit of spitting after eating. No doubt this habit was acquired by his effort to rid his mouth of the septic matter.

From this case we may draw the conclusion that the septic state of the entrance of the digestive tract, combined with the loss of mouth digestion, was at least a preeminent factor in causing the boy's anemic state, reducing his resisting capacity so that he fell a victim to the contagious diseases.

Oral sepsis and its relation to disease have been made the subject of careful study by William Hunter, the eminent English physician. In his recent work (Oral Sepsis as a Cause of Disease), he says:

"Infective disease of the mouth, as elsewhere, is not, fortunately, a mere question of the presence of an organism, however pathogenic, but a question of *dose* and *resistance*. In the case of the mouth, the question of dose becomes a very important one, when we have to deal, not with an isolated carious tooth, but with a whole series of such teeth, not only dark and necrotic themselves, but lying in inflamed septic and actively suppurating sockets.

"The continuous swallowing of mouthfuls of pus organisms is not tolerated indefinitely by the stomach mucosa. The number of organisms that enter the stomach from the mouth is very large—the most of them to be destroyed, fortunately, by the gastric juice. But this is by no means true of all. A very considerable proportion (as many as eight out of twenty-five, according to Professor Miller) are to be found in the stomach contents. The observations of Macfayden and others show that only a certain proportion are destroyed by the gastric juice. It is only when the acidity of the gastric juice is considerable—e. g., an hour or two after food—that it exercises any direct bactericidal action.

"In long-standing dental disease, the conditions are thus, I consider, precisely those most likely to produce infection of the stomach—viz., on the one hand, *diminished resistance, i. e.,* diminished acidity as a result of the chronic indigestion and catarrh; on the other hand, *increase of dose, i. e.,* increased supply of pus organisms from the necrotic teeth, reaching the stomach not only during digestion, but in the intervals between meals when the free HCL is at a minimum or *nil.* That under such circumstances disturbances may arise, from abnormal fermentative processes in the stomach, is a fact to which both clinical and pathological experience testifies—one, too, that is generally recognized. What, however, I find is that the effect is not limited to a mere fermentation of food products, but that actual *infection of the mucosa* with pathologenic organisms may itself occur. The mucosa of the stomach continuously exposed to infection—e. g., of pus organisms from the teeth—becomes eventually infected. A septic catarrh is set up, never to be got rid of, but continuously sustained by influx of septic organisms into the stomach; if continued long enough, this chronic catarrh leads to the usual effects of a glandular catarrh, viz., glandular atrophy, with increase of interstitial tissue around.

These considerations as to the possible effects, both general and local, of long-continued dental and oral sepsis are of no mere pathological interest. On the contrary, they are of supreme practical importance, exemplified as they are (to a degree which is, in my judgment and almost daily experience, is altogether insufficiently recognized) by the cases one meets with of gastric catarrh in association with dental and oral sepsis.

"The ashy-grey look and general languor which such patients, in one's experience, characteristically present, are really manifestations of long-continued septic absorption; the local symptoms of clamminess of the mouth, which one simply looks upon as manifestations of gastric catarrh, are really the result of the oral sepsis; while the nausea, indigestion, and gastric discomfort are the result of "septic" gastric catarrh produced by direct infection of the stomach with the pus organisms.

"These considerations, as I have thus put them, may appear so obvious that they require no further emphasis. But the cases I have to describe illustrate two points—first, the frequency of the conditions; and secondly, the extraordinary way in which the most remarkable conditons of oral sepsis are overlooked, while the patient is being all the time sedulously treated for the local effects."

The numerous cases that Dr. Hunter then describes give striking and conclusive evidence of these facts, especially as the cases were not selected rare ones, but were from his own experience. Similar conditions may be seen in great numbers in our city. A visit to the out-patient department of any large hospital shows on the benches of the waiting-room many patients suffering from the various phases and stages of oral sepsis. For example, an oral examination of a woman with chronic gastritis will generally reveal a foul, furred tongue, bordered by a series of discolored, broken-down septic teeth and stumps, many of which have reached the chronic abscess state, from which on pressure a copious discharge of pus wells up, having that unmistakable odor of bone abscess. It is in this septic entrance to the digestive tract that the actual process of digestion begins. Not only is the patient forced, because of her crippled mastication surface, to bolt the food into the stomach in masses much too large to yield the normal nutritive efficacy, but the food is actually inoculated with the mixed infection already referred to. The deplorable state of her mouth cannot but have a direct and powerful influence in the causation of the gastric trouble. This form of oral sepsis is prevalent enough to be called a type.

Another type hardly less common may be illustrated by the following case: On the lower jaw are found only eight or ten teeth, which are in the various stages of decay; in addition to this, the sheltered surfaces of the teeth are covered with scales of calculus, which have collected in such masses that the bony sockets of the teeth have become irritated to the pus stage, resulting in the formation of pockets which are filled with this pus and decomposing food debris. This condition has existed, continually increasing for some time until now the sockets are nearly destroyed and the teeth are literally floating in pus. The condition of the upper jaw is unfortunately not much better than that of the lower, for the teeth have been lost and their places taken by an ill-fitting rubber plate which evidently has received as little sanitary attention as the mouth itself. The sheltered surface of the plate is filthy beyond description, being covered with a foul, slimy film, the result of germ life. It must be realized that this foul internal drainage is continuous in these neglected cases, and no thinking person can deny that it is a preeminent factor in the causation of disease and the spread of contagion.

It has been my experience in the infirmary of the Dental School to see mothers, in a state of oral sepsis similar to this indicated in Figure 6, fondling their puny infants. In this close human contact it is highly probable that the unsanitary oral state is a means of conveying diseases to the offspring. Concerning this practice Dr. Hunter says: "No physician would tolerate for a moment that a person who has a foul septic ulcer on his arm should periodically suck it; and yet this is what is allowed to go on in the case of the mouth for periods of years unheeded alike by doctor and patient." He also makes a just criticism of the judgment of a certain class of dental practitioners for their disregard of the laws of sanitation in restoring lost masticating surface, especially in the unhygenic construction of bridge work. He criticises these same men for not pointing out to their patients the far-reaching dangers resulting from dental decay and necrosis. In the same connection, he says, regarding surgery:

"The surgeon who is punctilious to a degree—and most rightly so—in seeing that, so far as local scrubbing and disinfection can effect the result, no single septic organism shall remain in the portion of the skin he operates on to contaminate his wound; who regards—and rightly so—even one drop of pus in connection with his wound as an evidence of sepsis and of partial failure on his part to attain the perfection of results; whose whole life, it may be said, is passed in excluding and combating septic infection, even in its slightest degree; he also, wthout hesitation, will perform the most complicated and severe operations, e. g., on the stomach or intestinal canal, without the slightest regard to the presence of septic teeth, septic roots, septic conditions of the gums and buccal mucous membrane."

In this country these statements should be somewhat modified, for the leading surgeons are fast realizing the dangers of oral sepsis as a source of infection. As Dr. J. Collins Warren has lately stated in a letter:

"In regard to the value of the Dental School as a part of the new system (the Harvard Medical School and group of adjacent hospitals) I could say that experience has shown that a dental school is an important feature of hospital work. Success in operative surgery is in a measure dependent upon the proper care of the mouth; the teeth of the class of patients which frequent charitable institutions are usually in such a condition as to give rise to the possibilities of grave complications after the use of anaesthetics.

"The proper care of the teeth is, or should be, part of the hospital nurse's training and a prominent feature of the hygienic discipline of a great hospital.

"Consequently the presence of a dental school * * * cannot fail to be of great value to such a system as is contemplated."

As a final piece of testimony to the significance of oral sepsis, the words of Professor Osler to the students of the Royal Dental Hospital, of London, may be quoted:

"You have just one gospel to preach, and you have got to preach it early and you have got to preach it late, in season and out of season. It is the gospel of cleanliness of the mouth, cleanliness of the teeth, cleanliness of the throat. These three things must be your text throughout life. Oral hygiene—the hygiene of the mouth—there is not any one single thing more important to the public in the whole range of hygiene than that, and it is with that, you as practitioners, will have to deal."

Thus far I have attempted to point out a few of the causes and some of the dangers of oral sepsis; now I shall endeavor to explain how in a measure it may be controlled. The prevention of this condition falls under the head of oral hygiene. This fact is well assured. Therefore, it should be handled, broadly speaking, as all other problems of hygiene, by the education of the public in that special direction. The fight against tuberculosis is a good illustration of this special training. The one great difficulty in combating oral sepsis is that it is on the border line between medicine and dentistry. That is, the medical practitioner considers it in the province of dentistry, and consequently is not trained in the art of stomatology enough to realize the full importance of this condition. On the other hand, the realm of the dentist unfortunately does not extend beyond the specialty of stomatology, although the modern training of the dental student is much broader than this. Thus, with the responsibility divided between the two professions, oral sepsis exists to a shocking degree. The first step in the battle, therefore, is co-operation between these two professions. Not until there is a definite understanding between them will it be possible to educate the masses.

With this co-operation secured, the question is how to conduct the campaign against oral sepsis. Much can be done by the hygienic discipline in hospitals and through the medium of the district and the school nurse; also a great amount of good is done at the clinics of the various dental schools. "Emerson has taught us," says President Eliot, "that if we hope to reform mankind, we must begin not with the adults but with children; we must begin in the schools." The study of oral hygiene should, therefore, be introduced into the public schools; tooth-brush drill is just as important to the health of the child as the prescribed physical exercises.

Several attempts have been made in this country at teaching and practising in the schools this branch of hygiene. One instance in particular is worthy of note. The results of treatment in a children's home were, according to the superintendent's report, a marked decrease in contagion, with a consequent financial saving to the institution. Dental inspection has been introduced into the public schools of Brookline, and Professor William H. Potter, of the Harvard Dental School, reported on the results of this work in the Boston Medical and Surgical

Journal, December 13, 1906. The teachers of the Dental Department of Harvard University are urging the public school officials of Boston to introduce dental inspection and the study of oral hygiene into the school system. These men trained in this special work, realize that the enforcement of this measure would be a great step in preventive medicine, with a consequent financial saving to the citizen. The testimony of high authorities on this subject is strong. Dr. George V. I. Brown says: "If the mouths of the children in our public schools could be systematically examined by competent persons, and instructions given and enforced with regarl to the intelligent use of brushes and antiseptic solutions, the death rate of this country would be very materially lessened, the percentage of illness much reduced, and a stronger and more vigorous race result in consequence of these prophylactic measures."

According to the London Lancet (Oct 2, 1902), Professor Osler's words are: "If I were asked to say whether more physical deterioration was produced by alcohol or by defective teeth, I should unhesitatingly say defective teeth."

The city of Strassburg in Germany affords a striking example of systematic compulsory education in the care of the mouth and teeth. The third annual report (by Dr. Jessen) of the work declares: "Since the introduction of the treatment there is a marked improvement in the general health of the public school children and there are less headache, earache and stomach troubles." It is almost unnecessary to add that pain from dental origin has been practically controlled.

The following three cases are taken from this report. They are so highly typical of the conditions which we find among the poor children of Boston that I have included them in this paper, the only liberty taken being free translation of the text.

CASE 1.

Figure 7 shows the dental condition of a child at five years and six months of age. Although these teeth are only temporary ones, still their putrid condition is a menace to the child's health, as this condition invites tuberculosis and pus poisoning, and diphtheria, scarlet fever, and other infectious diseases of childhood. Mouth digestion is impossible, for the crushing of food upon the irritated "nerves" of the broken-down teeth would cause the child so much pain that the food is bolted into the stomach. The child is unconsciously learning many habits of eating which are a menace to its present and future health. Furthermore, according to the most advanced ideas in the economics of nutrition, the child is gaining only a small part of the nourishment of the ingested food, with, at the same time, a great tax upon its digestive apparatus.

No such conditions would exist if oral hygiene were taught in the public school system and if each town established public dental infirmaries. In the city of Straussburg, where these measures are enforced, experience shows that the school children are influencing their parents and their younger brothers and sisters to take advantage of the public treatment. This school instruction, combined with the public dental inspection and treatment, is the only successful method of fighting dental caries—the disease of the people.

CASE 2.

Among other symptoms accompanying the destruction of the teeth of a seven-year old girl (Figure 8), there was a marked swelling of the glands of the neck and a fetid odor from the breath. With all children suffering from dental caries to a marked degree, there is a tendency towards these symptoms. The air of the school-room is, of course, infested by this infected area to a high degree. Innumerable bacteria are inhaled into the lungs, and more are drawn further into the digestive tract, and many are thrown out with the breath in speaking, coughing and sneezing. Thus the diseased teeth with their focus of nutrition are a continual danger to the individual and the surrounding scholars.

It will be seen that three of the four extreme back teeth are badly diseased. These teeth are the six year molars, which should render service throughout life; but through the putrid influence of the temporary teeth they have turned carlous soon after eruption. This illustrates the destructive influence of diseases temporary teeth upon the permanent ones. From the facts regarding these two cases, we are driven to conclude that the diseased mouth must interfere with the physical and moral development of the child. Of course, the mothers of the poor children are entirely ignorant of these facts. Instruction should be given. The people's health depends upon it. The fight against the people's disease must be taken up everywhere with energy.

CASE 3.

The repulsive condition of this young woman's mouth (Figure 9) is not only a check to the physical and mental development but is a far-reaching element in preventing her earning a good living.

When every town establishes school dentistry, then these infected mouths full of carious teeth, with exposed and gangrenous pulp, putrid roots, and tumorous fistula, will disappear and with them a great many pale cheeks, dull eyes, fetid breaths, and indications of nervousness, all symptoms of anemia and gastritis.

CONCLUSIONS.

Dental caries, or tooth-rot, is the most prevalent disease that attacks man, and is a pre-eminent factor in the causation of other diseases in the human body. This initial disease is the cause of great physical suffering, to check which, millions upon millions of dollars are annually spent in this country. Thus, to prevent dental caries would be a great financial saving, and a very great step in preventive medicine. Since this disease is a problem of the civilized world, it should be further investigated; and to aid investigation money should be provided to secure the most eminent men in research work.

In the present state of scientific knowledge, the most adequate means of combating dental caries and oral sepsis is by the enforcement of hygienic measures. In order to make this hygienic fight successful, the physician and the surgeon should cooperate with the dental practitioner, for this branch of hygiene requires a thorough knowledge of the teeth and their adjacent tissues. Skilled dentists, therefore, should be placed upon the various hospital staffs to treat this infected area which so materially hinders both surgical and medical treatment. Dentists should give the nurses instruction in the hygienic care of the teeth. Dentists should also be placed upon the staff of medical inspection of the public schools, for the condition of the child's mouth is just as important to its health as the condition of its throat and nose.

Collateral reading: "Microorganism of the Human Mouth," by W. D. Miller, M. D., D. D. S., Sc. D.

"Essentials of Bacteria," by M. V. Ball, M. D.

A Contribution to the Study of the Mouth.

"Bacteria," by S. A. Hopkins, M. D., D. D. S.

"Diseases of the Stomach and Intestines," by Prof. B. C. Ewald.

"Various Writings," by D. D. Smith, M. D., D. D. S.

The (Periscope) Dental Cosmos.

BACTERIA OF THE MOUTH A FACTOR IN SYSTEMATIC DISEASES*

By C. W. Staples, D. D. S., of Boston, Mass.

That each germ entering the system must be disposed of, even though it be at the expense of the life of the corpuscles that does this work, when coupled with the knowledge that each minimum of saliva found in the average mouth applying a Dentist for treatment contains from four thousand to five thousand Micro-organisms in mixed cultures, consisting of staphylococci, streptococci, diplococci, and many times more pathogenic bacteria than we like to think, should be sufficient to set all thinking ot the vast amount of vital energy which is expended in combatting these myriads of micro-organism, which are being constantly grown in the cavities of deciduous as well as permanent teeth.

The preparation and examination of about two hundred smears from mouths found in an average practice has revealed to me conditions which would have been astounding, had it not been for the work of the late Dr. Willoughby D. Miller.

Immunity is a relative term used in contrast to susceptability, and no human or other animal can be said to be absolutely immune under all circumstances. Although practical immunity exists by nature in some cases in certain diseases, and is frequently acquired by an attack of the disease or by artificial methods.

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*Read before the American Academy of Dental Science, Boston, January 1, 1908.

That non-pathogenic bacteria may, under some circumstances, produce disease by toxemia, is well established, and as disease like immunity is a relative term, it seems that the absorption of these myriads of even non-pathogenic bacteria must and do render the system at least much more susceptible to the encroachment of any pathogenic bacteria that may happen to come their way.

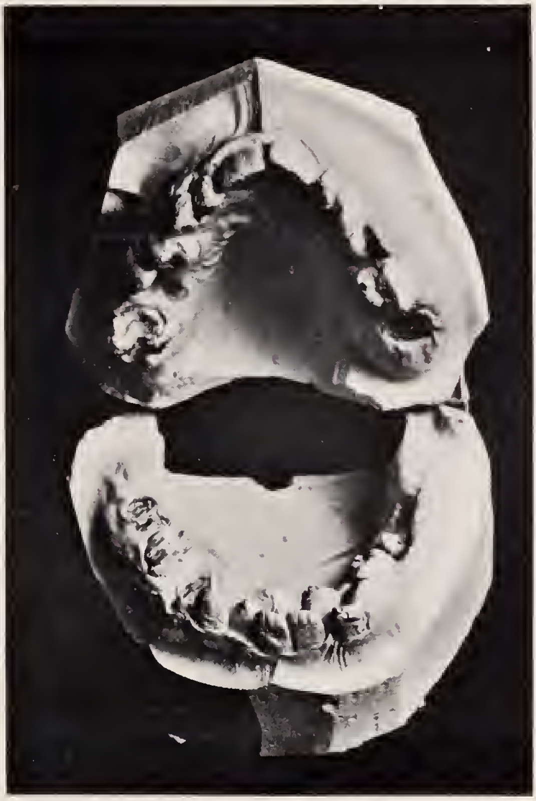

Fig. 1

The case of an excellent General Surgeon, who in spite of every possible precaution as to preparation and care of the patients, assistants, operating room and instruments, found his cases going badly until he had his mouth thoroughly renovated and put in as near an aseptic condition as possible, by a competent Dentist is now a familiar bit of ancient history.

Dr. Hunter maintains that even in cases of typhoid ulcers, disastrous results are seldom produced unless the ulcers show evidence of previous infection with some other than the specific bacilli.

All this tends to show that the presence of such bacteria, as you see here on the screen before you, although familiar to us all, are nevertheless detrimental to the health and may even endanger the life of the patient by their undermining influence, but when you add the excellent breeding grounds, which we find in mouths like this one before you, supplied as they are with a mixed culture medium of starchy goods, potato, beef, egg, etc., which is frequently renewed and kept at nearly an even temperature of 98 degrees F., and moistened by saliva, which has been proven in normal conditions to be lacking in antiseptic qualities, and more often in a condition favoring the growth of

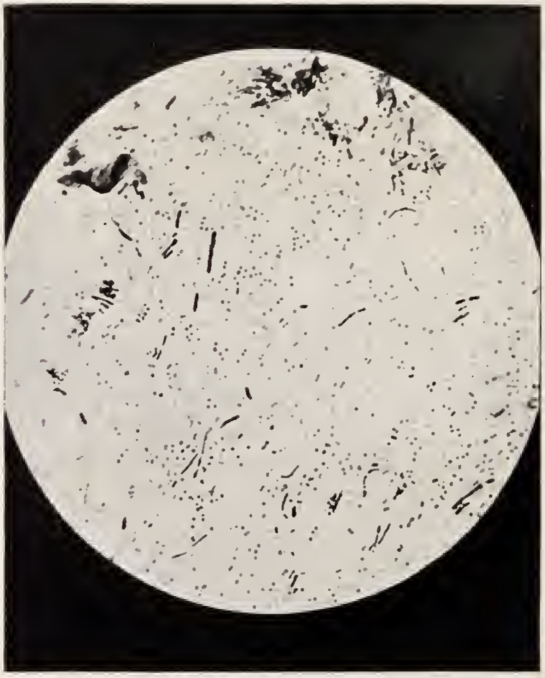

Fig. 2

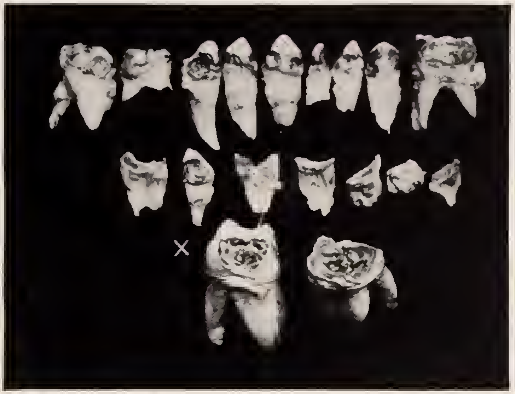

FIG. 3. The nine-year-old boy, from whom these septic teeth were removed, has within the last three years been attacked by diphtheria and scarlet fever.

Has this infected area an influence in the causation of these diseases? (From the clinic of the Harvard Dental School.)

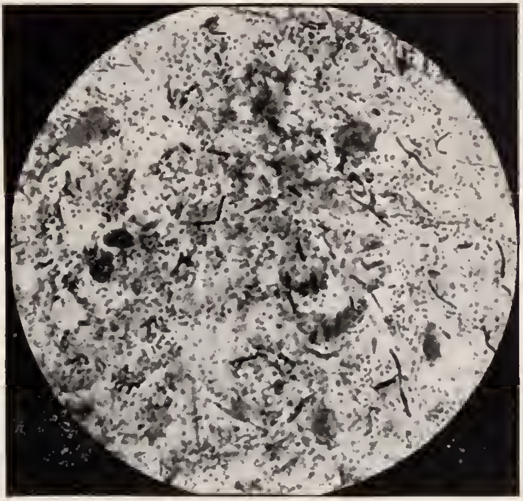

FIG. 4. A microscopic view of the food from a carious cavity. (See X in the above photograph.) This illustration shows staphylococci, streptocci, diplococci and several bacilli, also epithelial cells. (Specimen prepared by C. W. Staples, D.D.S., and photographed by the Pathological Department, Harvard Medical School.)

bacteria, think of the billions of these little enemies of mankind that are being swallowed by a patient each day, and of the reduction in number that would follow should each cavity be properly filled, and the margins of every filling so thoroughly finished as not to leave the slightest shelf in a hidden recess for the retention of culture media without which bacteria cannot multiply.

If you will permit a diversion from the subject, I am afraid the last point is too often neglected by Dentists, even in the mouths of our most esteemed patients.

The importance of micrococci gingivae pyrogenis, described by Miller is not to be overlooked, for while always found in pyorrhea alveolaris, its cultures are so virulent in character that when injected through the skin of mice, they cause abscesses resulting in death, or when injected into the abdomen cause death from peritonitis within twenty-four hours, and upon opening the cavity after death, show a very large number of this specific micrococci.

In studying the relation of exanthemous fevers, commonly considered to be children's disease, to the human culture tubes, we are confronted by the obstacle that only one of the more common has had a specific bacteria discovered, cultivated and proven, so our further investigations will follow. Diphtheria which it seems would be as liable to grow in cavities of the teeth as upon potato in our breed ovens.

While I do not wish to advance the theory that all the ills of human life come from carious teeth, it is found that in public institutions like the South Department of our own City Hospital, the majority of the patients suffering from such disease as are treated there, upon opening their mouths will show from four to twenty cavities, all teaming with microscopic life of which this photograph is an example.

When the slide from which this was taken was shown to a prominent pathologist not long ago, he remarked that it would be possible to have isolated almost any known bacteria from a smear like this.

By circumstances beyond my control, I have been deprived of the pleasure of presenting to you a photograph of the specific bacilli of diptheria isolated from a case similar to this, but I still believe it possible and hope to spend my next vacation in this work.

But in the meantime let me urge all to do whatever may be within your power to hasten the time when the unfortunate children whose parents know or care little for dental science, may be relieved of these conditions which tend to endanger their health and spread disease through our public schools and communities generally.

MUMMIFICATION OF THE PULP.*

BY J. A. WAAS, D. D. S., HAMMONTON, N. J.

Mr. President and Gentlemen—

This paper will, I think, commend itself to the Dental profession not only because it is a plain, truthful statement of facts covering treatments extending over a period of almost twelve years, but mainly because reports from a number of patients selected at random from those treated by me during that time, show the continued success of the treatment.

The invitation which led to my presence here this evening requested me to lay before you, for your consideration, the facts concerning my use of the treatment known as Pulp Mummification; whether I continued to use that treatment in my practice, and whether the hundreds of cases of treatment previously reported by me had shown a continued success.

For almost twelve years I have been using this treatment in bi-cuspid and molar cavities inaccessible to ordinary treatment, and, so far as my knowledge goes, the results have been uniformly successful; what may be termed "failures" having been so few and far between that they are not worth mentioning.

When I first commenced to use the treatment, it was not without apprehension and fear of the final result, but, as time went on from weeks to months and from months to years, and I found, by close examination of the cases from time to time, that the treated teeth remained in good condition, my fears vanished, and I continued to use the treatment without hesitation, when, in my judgment, the occasion required it and I have, from time to time, publicly advocated the treatment, to be accepted or rejected by my brethren of the dental profession, as they saw fit.

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* Read before The New York Institute of Stomatology, January 7th, 1908.

To-day there are hundreds of first-class practitioners using this treatment and surely they would not be doing so, if the results did not warrant it, and, with all due regard to the learned gentlemen who have decried the treatment in the past, I may say that I doubt whether any of their objections is based upon other than purely theoretical grounds, for I do not believe that they would continue their strictures if they had given the treatment a fair trial in practice.

I have never tried to evade responsibility as an advocate of this treatment and I have been criticized, mis-quoted, and maligned, and the treatment has been so torn to shreads, that, if it was not for the preservative qualities which are its chief characteristic, there would be nothing left of it.

I still hang on, however, and bob up occasionally when requested to do so in order to compare the treatment with that of canal filling as practiced by the average operator, and I think I have no reason to feel ashamed of the comparison.

You will agree with me that a man who practices dentistry in a small town has a better chance to note the results of certain treatments than those who practice in large cities, and, feeling my responsibility, I have watched the results of this treatment with more than ordinary care, and I have not found it wanting.

My invitation contained a number of questions to which I will reply, but before doing so, I think it will be advisable, with the permission of the President and the indulgence of the members, to give a description of the pulp mummification treatment, as I practice it, and to state wherein I think it is, in certain cases, preferable to that of devitalizing and attempting to remove the pulps from canals preparatory to filling the same.

No partially filled canal can be considered a successful operation, yet every dentist who has been in practice a number of years, knows that there is a class of cavities, especially in molar teeth, containing nearly or fully exposed pulps which, after devitalization, cannot be removed and the canals filled, even by the most expert operator, with any certainity that the filling of the canals has been complete.

The mummification treatment is designed to take care of just such uncertain cases, and it consists in first devitalizing the pulp and then, instead of trying to remove it and fill the canal, in applying a paste, the composition of which I will later refer to, which paste has the effect of mummifying that portion of the pulp remaining in the canal so that it can safely be permitted to remain as a permanent and natural root filling.

Please bear in mind that I am not a "crank" on this subject and do not wish to be understood as advocatinng the mummification of *all* devitalized pulps, and in my practice, I apply this treatment only to those pulps whose removal in their entirety and the complete subsequent filling of the canals is doubtful, as there are other treatments which have been taught to me almost from boyhood, from which it is very hard to depart and which are almost certain in their results, although they take much more time and often subject the patient to considerable suffering, which is a strain both upon the patient and the operator. When, however, there is a doubt that the removal of the pulp and the proper subsequent filling of the canal can be effected, the mummification treatment, when properly and thoroughly executed, is undoubtedly the best.

I never attempt to mummify a pulp which shows the least putrescence, but only those which are freshly exposed or which cannot, because of too thin a layer of detine, be capped and indefinitely preserved. In such cases I apply arsenious acid in very minute quantity together with wood creosote, and, after one or more treatments, or when I am convinced that the pulp has been devitalized to its very end, I remove, with a large spoon excavator or a round burr, that portion which fills the pulp chamber, and after thoroughly desiccating the remaining portion of pulp in the canal, I apply a paste consisting of one dram each of dried alum, thymol, and glycerol, mixed with sufficient zinc oxide to form a stiff paste.

This is pressed well into the canal with tight rolls of cotton and the pulp chamber is also filled with the paste, after which I insert a thick layer of cement, finish the cavity, at the same sitting, with any desired filling, and dismiss my patent, feelng reasonably sure that I will hear no more from that operation. I say this with a degree of confidence which is surpassed only by its truthfulness.

The number of cases treated by me up to July 1st, of this year, has been about 350, and from these, some time ago, I selected one dozen cases at random and requested the patients to visit me, in order that I might ascertain the present condition of the treated teeth.

The following is an account of these cases:

My first use of the treatment was on June 15th, 1896, for Mrs. Frudenthal. She called on me on September 5th, last, and I found the tooth and filling in first class condition, the tooth slightly discolored, but no more so than any bi-cuspid which has for so long a time contained a large alloy filling.

The 10th case was treated September 12th. 1896, for Mr. James Baker. I found the tooth and filling in first class condition.

The 27th case was treated March 29th, 1897, for Mr. Howard Holland, but as he failed to call upon me in response to my request, I cannot report as to that case.

The 30th case was treated May 27th, 1897, for Mr. P. Whiffen, who removed to Philadelphia shortly after, and, from time to time, had teeth extracted, including the one which I treated, consequently I cannot make a report on that case.

The 40th case was treated August 9th, 1897, for Miss M. Layer. I found the tooth and filling in first class condition.

The 62nd case was treated March 11th, 1898, for Mrs. H. Wilson. I found the tooth and filling in first class condition.

The 70th case was treated in June, 1898, for Mr. Paul Snow. I found both teeth and filling in first class condition.

The 75th case was treated July 16th, 1898, for Dr. F. Tomlin. Dr. Tomlin is a dentist who is practicing in Haddonfield, N. J. In reply to my inquiry, he wrote me as follows:

Haddonfield, Oct. 10, 1907.

Dear Mr. Waas:

I received your letter only yesterday, as I was ouf of town. The tooth which you mummified for me has never given me any trouble and is an entire success. I had to have it crowned two years ago, but that was not your fault.

I hope all the teeth have proved as successful as mine.

Sincerely yours,
F. H. TOMLIN.

The 96th case was treated December 12th, 1898, for Miss H. Davidson. The tooth and filling are still in first class condition.

The 131st case was treated December, 1898, for Mr. Charles Fitting. I found tooth and filling in first class condition.

The 151st case was treated November, 1901, for Mr. William King. The tooth was one of several which I had since extracted for this patient, but I had forgotten it when I requested him to call for examination.

The 170th case was treated in July, 1902, for Mr. B. Eckhardt. I found the tooth and filling in fine condition.

You will observe, therefore, that of the dozen patients notified, one did not call for examination, two have since had the treated teeth extracted for artificial work, and in the remaining nine cases, the treated teeth were all found to be in excellent condition.

The patients who have had the treated teeth extracted informed me that, previous to extraction, these teeth had given them no trouble whatever, and if the patient who did not call had experienced any trouble with his treated teeth, I should certainly have heard of it. I therefore think that you will agree with me that no one of these cases can reasonably be called a failure.

I will now refer to the only instance of the treatment which subsequently came under my notice, and which I call failures.

I treated a tooth for a patient on November 3rd, 1896, and on July 4th, 1907, he called upon me because the filling in this tooth was loose. He informed me that it had been in that condition for some time, but could not say for how long. I removed the alloy and what was left of the cement and found the canals empty. After thorough cleaning, I filled the canals and tooth, and have no reason to believe that the tooth is not in good condition at this time.

My second use of a mummification treatment was on March 3rd, 1896, for a sickly, anaemic person with a disgustingly dirty mouth. In April, 1906, I extracted what was left of the roots, which were badly abscessed.

These two teeth were the only cases upon which I used the treatment, which, so far as I know, were not continuously successful, and even if the mummification of the pulps in these teeth could properly be charged with their condition more than ten years afterwards, that would represent but about one-half of one per cent of failures in a period covering almost twelve years' use of the treatment.

I have examined a number of teeth subjected to this treatment in the mouths of patients afflicted by pyorrheas, and found these teeth in better and firmer condition than the other teeth.

A third molar was treated for a patient who shortly afterward removed to Atlantic City. She called upon a practitioner there and informed him that the tooth was tender. He removed the filling with the intention of treating the tooth, but found that he could not get into the canals. Learning from the patient that the tooth had been previously treated by me, he wrote to me concerning it and promised to keep me posted about it, but he has not replied to two letters which I sent to him asking for information about it.

I have with me some teeth with pulps which were treated after the extraction of the teeth, and one, marked with an X, which was treated in the mouth, and some time afterwards extracted, to note the condition of the pulp after being mummified, but as these teeth have been exposed to the air for quite a long time and handled a great deal, the pulps are not in as good condition as might reasonably be expected of pulps contained in teeth which have remained in the mouth.

I have also a number of teeth, some of which I had in Brooklyn about two years ago, when I claimed that the pulps could not be entirely removed from these teeth and the canals thoroughly filled. I was ridiculed at that time by a certain practitioner who said that it was an *easy lot,* and that if I could not remove the pulps and fill the canals of these teeth, it was no wonder that I was looking for a treatment which obviated the necessity of doing that kind of work.

I would like to have the opinion of some of those present as to the possibility of removing the pulps and thoroughly filling the canals of these teeth in the mouth. One of these teeth has a broach through the side of the root. The pulp was removed and the canal filled by an expert operator in Philadelphia. The patient afterwards came to me with an abscess to treat and after three months of unsuccessful effort, I extracted the tooth and then discovered why my treatment had had no effect. I have also a branch of a pulp which was sent to me by Dr. H. J. Smith, of Genesee, Idaho, who stated in his letter that the pulp was from a tooth supposed to be pulpless and which had been filled by a noted operator, *who removes all pulps and fills every canal to its extremity.*

The tooth necessarily gave considerable trouble, and the pulp was sent to me, you will see it between these two pieces of glass, with the letter of explanation, which I will be pleased to show to any one who desires to see it.

I have made note of only a few points, as I do not wish to trespass too long upon your time and patience, but I have dozens of unsolicited letters from all over the country in support of this treatment to which I could refer if I wished.

You will doubtless agree with me that the successful treatment of teeth depends entirely upon the operator. If a man is careful in one branch, he is usually so in all, and if careless in one, he is generally a failure in all, and I repeat what I have said at other times and places, that if an operator is looking for an easy road to success by mummifying pulps, he will be disappointed, for the successful practice of this treatment requires knowledge, care and skill, and an operator who does not possess such knowledge, and cannot or will not exercise such care and skill can not hope to succeed with this treatment any better than with any other treatment in dentistry.

A personal friend and patient who returned some time ago from a trip to the Orient, learning that I was about to read a paper on the subject of pulp mummification, informed me that while in Egypt in 1890, his party was very anxious to purchase a mummy to see if they could secure a scarab or amulet as a memento of their visit.

They bribed three Arabs to secure a mummy and on March 17, 1890, the party was invited to attend a reception at the house of a certain Consul who had been inveigled into the scheme. After enjoying the wonderful dancing of the Nautch girls and the subsequent refreshments, those not interested in the subsequent proceedings were invited to "retire," and the body of the mummy was brought in.

The outer casing was of wood, and the inner wrappings first of painted and then of plain linen. The heiroglyphics on the casing indicated that the body had laid for over 3000 years awaiting for life to again enter it, but the American tourists spoiled all its chances.

After about two hours labor the wrappings were removed and the body found to be that of a female and as amulets and scarabs ornamented the bodies of the males only, you can judge of the disappointment.

However, the party was not to be thwarted in their desire to have something, and the poor 3000 year old mummy was hacked to pieces with the knives and other dangerous weapons than Americans usually carry, and my friend and patient came off with the right hand.

I have with me this relic with part of its linen wrappings, which are wonderfully preserved, and I think that if a body can be buried as long as this one has been without decay, a poor little insignificant pulp of a tooth, enclosed as it is in a sealed wall of dentine and enamel, has a good chance of being preserved for the short time that a poor mortal has a use for it.

Gentlemen, I am as proud of my chosen profession as any man who has studied dentistry, and I can look into the faces of my professional brethren and say with truth, that in a practice extending over twenty-four years, I have done everything that a man possibly could to elevate his profession and to consider his patients' welfare, and I can further say without hesitation that in all that time, I have, in my opinion, done nothing of more real value and benefit to both patient and profession than the mummification of the dental pulp.

THE TEETH OF PUBLIC SCHOOL CHILDREN; HOW CAN THEY BE IMPROVED?*

BY WILLIAM H. POTTER, D. M. D., BOSTON, MASS.

My interest in this subject was actively aroused when about two years ago I was asked by the Town of Brookline to conduct an experimental examination of the teeth of the children of the Pierce Grammar and Primary School. An examination of the ears, eyes, noses and throats was also to be made in the same school. This examination was called experimental because the school authorities wished to know the exact condition of the pupils in a given school in order to judge whether such examinations ought to be made an established custom. I cannot do better in discussing the subject of this paper than detail at length the work which I did in this preliminary examination and in subsequent examinations.

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* Read before The New York Institute of Stomatology, Feb. 4, 1908.

The first thing to be accomplished was to learn the exact condition of the teeth in the school in question. Such a knowledge was essential to their intelligent treatment. The school numbered about 700; it was desirable to make the examinations as rapidly as possible so as to cause a minimum of disturbance in the school routine.

It was first necessary to arrange a convenient chart in order to record the results of the examinations. After considering several sorts of charts, I selected one used in the ledgers made by the Ransom & Randolph Co., a slide of which I shall present later. In this chart each tooth has a number and each surface of a tooth a number, and by using a large number to designate a tooth and a small number as an exponent to designate a surface of a tooth, the position of a cavity could be quickly and compactly described and recorded. It was necessary to provide examination chairs and instruments. Three adjustable head rests were purchased and attached to ordinary cane seated chairs, which were thus converted into examination chairs. A dozen boilable mouth mirrors, a dozen approved examination points and three dressing pliers formed the list. A large box of mouth napkins and absorbent pellets and a suitable boiler for a sterilizer were added to the outfit. I was able to call on three young practitioners to assist in the work. We planned to examine for three hours at a time from 9 to 12 A. M. The operating chairs were placed at suitable intervals in a row before a long wooden table. On the table by each operator were placed a supply of mouth napkins and clean instruments. On the other side of the wooden table facing each operator sat a young girl, a pupil in the school, who made the records. There were three operators, three recorders and one young woman who cleaned the instruments and boiled them after each use. The pupils came up to the examination room with their blank record cards in their hands, and their names and grades filled in (a picture of this card I shall show later.) This card was handed to a recorder and the patient sat down in the chair. The operator, who had previously washed his hands, took up a sterilized mirror and examination point and made the examination. When a cavity was discovered it was called off to the recorder and placed by number on the record card. When the examination was completed the examiner carried the used instruments to the sink where they were washed and sterilized by the attendant. The examiner washed his hands and went back to the chair where he found another patient ready for his care. By thus systematizing the work great economy of the time of the operator was effected. We found it possible for three men to examine on an average 50 children an hour or 150 in the three hour period devoted to each examination. It should be stated here that it was not considered practicable or necessary to make exhaustive examinations.

We rated a mouth in good condition where there were no readily observable defects, we rated it as in fair condition where there were several small defects or one or two sizeable defects. Other mouths were rated in poor condition.

To have made an exhaustive examination of these mouths would have taken more time and more instruments than could be at our command, and would not have materially added to the effectiveness of the work.

As a result of the examination held in this school the following classification was made:

Total Pupils examined	705	per cent.
Mouths rated as in Good condition	131	18.44
Mouths rated as in Fair condition	217	30.83
Mouths rated as in Poor condition	357	50.73

Having ascertained these facts the next thing was to undertake a betterment of the condition of the mouths rated as "Fair" and "Poor." To this end a notice to the parents was devised which read as follows:

OFFICE OF SCHOOL COMMITTEE,

Brookline, Mass.,........190 .

Notice to Parents.

............................has been examined by me and found to have teeth which need attention. You are advised to take h to your family dentist for further examination and for treatment. If circumstances do not permit consulting a dentist at his office, the child may be treated at a nominal cost at the Harvard Dental School Infirmary, North Grove Street, Boston, or at the Tufts College Dental School Infirmary, 1416 Huntington Avenue, Boston.

......................D. M. D.,

Examining Dentist.

A good deal of thought was given to the exact form of this notice. It did not seem best or necessary to give the parents a record of defects found or to tell them whether the teeth of their children were rated as "Fair" or "Poor." It was borne in mind that many of the children were under the care more or less regularly of a near-by practitioner, and that a notice sent to the parent stating that the child's teeth were in poor condition would be unfair to the practitioner, who would be held responsible for the condition, even though the parents had been negligent in arranging for regular professional care.

The notice to parents which we adopted aims to send all whose teeth need attention to their own dentist or to the Infirmaries of the Dental Schools, and at the same time protects the professional feeling of practitioners having patients among the school children. It also protects the reputation of the examining dentist by avoiding a definite statement of defects found in the mouth. It is quite conceivable that in examinations (necessarily rapid) minor errors may occur. If results of the examinations are made public, unimportant errors may be descovered and used to discredit the examiners and the examination. You will observe that our notice to parents clearly implies that the school examination is not an exhaustive one. The parent is advised to take the child to their dentist for further examination and treatment. The next step was to interest the children in the care and use of their own teeth. To this end the following rules were devised and given to every scholar examined:

Directions For the Care and Use of the Teeth.

1. The teeth should be thoroughly brushed after each meal.
2. A tooth powder used on the brush helps to clean the teeth.
3. Candy and crackers should not be eaten between meals; they cause the teeth to decay.
4. The slow and thorough chewing of hard food helps to preserve the teeth and keep the mouth in a healthy condition.
5. Children's teeth should be examined by a dentist at least twice a year.

The School Committee of the Town of Brookline was so impressed with the value of the examinations of the teeth, eyes, ears, noses, throats, held in the Pierce School, that they asked for an appropriation to enable them to make such examinations an established policy. The appropriation was made and a rate of compensation arranged for each professional man engaged in the work.

It should be stated in this connection that regular medical inspection of the public schools has been in force for some years in the schools of Boston and Brookline, and that in September, 1906, medical inspection of children in public schools was made compulsory in all public schools in the State of Massachusetts. But the examinations here described as being established in the Town of Brookline go far beyond the requirements of this law.

The second school placed under examination was the Lincoln Grammar and Primary School. It contains nearly 600 pupils, and many of them came from the poorer sections of the Town. The methods of the examination were the same as those employed in the Pierce School, and the results of the examination were as follows:

Total Pupils examined	579	Per cent.
Mouths rated in Good condition	32	5.5
Mouths rated in Fair condition	211	36.4
Mouths rated in Poor condition	336	58.1

*Chapter 502, Acts of 1906.

In order to make these statistics of more scientific interest than is possible by the broad generalizations given above, I singled out the sixth year molars for detailed consideration.

A more vivid idea of the dental condition of a given number of school children can be gained by such detailed consideration than by a consideration of the total defects of the teeth.

I wish to present the following statistics as to the sixth year molars of the pupils of the Lincoln School.

Condition of upper sixth year molars:

		%
Age 6-10 inc., 204 pupils, one crown lost	7	3.4
Age 6-10 inc., 204 pupils, two crowns lost	5	2.4
Age 11-14 + 345 pupils, one crown lost	47	13.6
Age 11-14 + 345 pupils, two crowns lost	24	6.9
Age 6-10 inc., 204 pupils, one entire tooth lost	0	0.
Age 6-10 inc., 204 pupils, two entire teeth lost	0	0.
Age 11-14 + 345 pupils, one entire tooth lost	4	1.1
Age 11-14 + 345 pupils, two entire teeth lost	0	0.

Lincoln Grammar School, Brookline, Mass., Nov., 1907.

Condition of the lower sixth year molars:

		%
Age 6-10 inc., 204 pupils, one crown lost	23	11.
Age 6-10 inc., 204 pupils, two crowns lost	18	8.8
Age 11-14 + 345 pupils, one crown lost	86	24.9
Age 11-14 + 345 pupils, two crowns lost	64	18.5
Age 6-11 inc., 204 pupils, one entire tooth lost	4	1.9
Age 6-11 inc., 204 pupils, two entire teeth lost	1	.49
Age 11-14 + 345 pupils, one entire tooth lost	45	1.3
Age 11-14 + 345 pupils, two entire teeth lost	8	2.3

Lincoln Grammar School, Brookline, Mass, Nov., 1907.

These tables will be later thrown on the screen for further study, but from the simple reading of the list you will have realized what a loss of chewing power is here described, and what periods of pain and incapacity have been endured. The sixth year molar has aptly been styled by Dr. Bogue "the principal molar of man." All will, I believe, agree with this designation. If this tooth is in large measure or wholly destroyed, the efficiency of the teeth as masticating powers is largely lost. By referring to the tables just read you will see that in 345 pupils from 11 to 14 years of age, 18 per cent had lost both crowns of the lower sixth year molars, and 24 per cent had lost one crown of a lower sixth year molar. In the same number of pupils of the same age 6.9 per cent had lost both crowns of their upper sixth year molars, and 13 per cent had lost one crown of their upper sixth year molars.

Amongst these pupils there were, of course, large numbers who had more or less serious defects in their sixth year molars, not amounting to a total loss of the crown, but sufficient to largely impair the usefulness of the tooth and to give rise to much discomfort and positive pain.

After the examinations in the Lincoln School were concluded, notices were sent to the parents as in the case of the Pierce School. But the condition of the teeth was so bad and showed such a lack of appreciation on the part of the scholars and their parents of the value of the teeth and such a lack of knowledge of how to preserve them from decay, that I proposed to the School Committee that an illustrated lecture be given to the scholars and their parents upon the value and care of the teeth. This proposition met with favor, and I began the preparation of such a lecture. This lecture was given on January 28th, before an audience composed of the pupils of the school and many of their parents. The lecture undertook to impress the great value of the teeth in the process of digestion and assimilation of food; to describe how decay of the teeth came about through lack of cleanliness. How decay caused loss of function and much incidental pain and inability to work. Methods for preventing decay through the maintenance of cleanliness were clearly described and shown, and the part played by the dentist in the repair of lost substance stated.

The greatest stress was laid upon the value of the teeth and the possibility of preventing their loss by systematic prophylactic measures. I shall later show a few slides prepared especially for the lecture, and you can then clearly understand my method of treating the subject.

In the examination of the noses and throats of the children of the Lincoln School it was found that nearly 50 per cent. suffered from adenoids and enlarged tonsils, and this fact, together with the general unsatisfactory state of the teeth led to a conference of the specialists, the School Board, and the principals of schools to see if some measures should not be taken by the Town to treat such children as could not or would not, go for treatment to hospitals or private practitioners. It was suggested that an emergency clinic be opened in the Town to operate upon adenoids and tonsils, and that while the patient was under ether for these operations all hopeless teeth should be extracted. This proposition met with favorable consideration, but definite action has not yet been taken. And this leads up very naturally to the question. How far should the City or State go in furnishing free professional service for the treatment of the teeth of school children? It is well known that in some cities of Germany, notably Strassburg, the teeth of the pupils of public schools are to a large extent, taken care of at public expense. There they believe that the State cannot afford to have children growing up without the power to chew hard food. Germany in this respect is far in advance of other parts of the world.

I wish in this connection to refer to the elaborate work of Dr. Ernst Jessen of Strassburg, Germany, entitled "Zahn hygiene in Schule und Heer."

Probably this form of paternalism will not soon be adopted in our country; the tendency with us is to try and arouse the child to the care of its own teeth and to make the process easy of accomplishment.

Let me recapitulate what seems to me should be done at the present time to better the teeth of the public school children.

1. Examine and record defects in their teeth.
2. Interest the child in the care of its teeth, and the child's parents as well.
3. Instruct the child how and when to clean its teeth; what substances or conditions are harmful to the teeth.
4. Instruct the child when to go to the dentist for examination of the teeth and repair of defects.
5. Provide professional care at a minimum expense, and in some instances at no expense for those of scanty means.

Dental schools, where they exist, should be well equipped for taking care of the teeth of school children at a minimum charge. Where Dental schools do not exist, private practitioners should form an association and arrange for such work. If each practitioner gives a portion of his time to public work a great deal can be accomplished.

I realize as must everyone, that the problem of repairing the defects in the teeth of school children is one that seems hopeless, and is therefore discouraging. We must lay all possible stress upon the prevention of decay by prophylactic measures—only when school children assume charge of their own mouths and enter the fight to stop the ravages of decay, will there be any material abatement in this destructive and prevalent disease.

As a practical matter, I wish to call attention to what has during the past winter been established in Boston, namely, a Dental Hygiene Council. This is a committee of seven representing all the dental societies centering about Boston. The duties of this committee include the distribution of literature amongst educational institutions throughout the State, as to the care and use of the teeth; conferences with those in charge of school children as to how the teeth of their children can be improved. The committee hopes to devise ways and means for the treatment of the teeth of persons of small, or no means; to arouse the community to a realization of the prevalence of dental caries and its ravages, and institute a crusade for better teeth.

Nearly two years have now elapsed since making the experimental examination in the Pierce School, Brookline, which I described at the beginning of this paper and with a desire to know just what has been accomplished by that examination, I asked the Principal, Miss Mary McSkimmon, to state to me what, in her opinion, were the results of that work. Her letter received a few days ago, is well worth hearing, and I will read it in full.

My dear Doctor Potter:

The examination of the teeth of the Pierce School children two years ago, has been of unreckoned value to the school ever since. It gave us absolute data upon which to work, and indicated common sense measures for bettering the condition by care and repair. The latter was, of course, chiefly incumbent upon the parents, who cheerfully came to the help of the teachers. A great many children willingly submitted to the ministrations of the family dentists, when family and neighborhood pride was roused. The response from the homes was prompt and cordial. Nothing better could be asked for.

In cases of great poverty, we encouraged the older children to go to the infirmary of Tufts Collegs, close at hand. Several cases were well taken care of there. The kindly spirit and gentle dealings of the dentists who conducted the tests here at school did much toward cultivating a feeling of confidence on the part of the children, and a willingness to have evils corrected, if their school dentist could do it.

But by far the best results have come by the care of the teeth instituted by the examination. Children have been given practical lessons on the care of the teeth. All through every grade, lessons in the proper care and cleaning of the teeth form the most important of the health lessons.

This year we have gone one step farther. A local druggist has been induced to sell a tooth brush which we call "The Pierce School Tooth Brush" for ten cents. After the lessons on the care of the teeth, the children are invited to bring their tooth brushes to school. All our primary classes are this month having tooth brushing contests, where the teacher illustrates with her own brush, and the children vie with each other to exhibit proficiency in cleaning their teeth exactly right. I am forced to admit that although every child brings his own brush, several of them give evidence of having been bought on the way to school.

Every day as the teacher passes down the line to look at the condition of the hands and nails, it is not necessary to say, "Show me your teeth," as every smiling face shows a pair of lips widely parted over well scrubbed teeth.

In the grammar grades the same tooth brush interest has been awakened, a great many children have been led to abandon a brush used in common with another member of the family, and clean teeth are everywhere becoming a matter of course. We are compiling individual "Health Books," and learning health rules, which the children take immense delight in illustrating from magazine pictures.

In conclusion, I wish to give the names of the practitioners who were associated with me in the work above described. They were Drs. D. F. Spinney, E. B. Wyman, E. N. Kent, F. B. Hicks, J. J. Riley. By them all the examinations were made and through them, in large measure, have the results of the work been possible.

Yours sincerely,

MARY McSKIMMON.

January 24, 1908.

DENTAL TRADE JOURNALS AND THE NOSTRUMS.*

BY G. BENTON SQUIRES, PH. G., D. D. S., SOMERVILLE, MASS.

In the August, 1907, issue of the *Dental Cosmos*, the editor, under the caption, "The Editorial Prerogative," calls to account William C. Fisher, D. D. S. and myself for having the temerity to criticize the dental trade-journals in general and the *Dental Cosmos* in particular.

In this editorial he attributes our motives to "vindictiveness," produced by having "a proffered communication returned as unavailable" and to an "over-developed ego." When I wrote, asking if he had not stooped a little in accusing us of such picayune motives, he replied that this part of his remarks did not apply to me. Believing that no one can read the editorial in question without concluding that the first part of his criticism applies equally to both, I shall take the liberty of replying with the intention of setting myself right with the profession.

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*Read before the Metropolitan District of the Massachusetts Dental Society, February 10th, 1908.

The only communication of mine "returned as unavailable" by the editor of the *Dental Cosmos* was a paper entitled "A Plea for Individual Prescription Writing," written some two years ago, (in which I exposed certain dental nostrums.) It was read before the Boston and Tufts Dental Alumni, and reread, by request, before this society and the American Academy of Dental Science. The editor of the Boston and Tufts Dental Alumni sent it to the *Items of Interest,* the journal publishing its proceedings at that time. It got as far as the proofs which I corrected and returned, when the editor became apparently alarmed; consulted the owners of the journal and concluded that he could not publish the paper unless the Boston and Tufts Alumni furnished bond.

I then took over the manuscript and sent it to the *Dental Cosmos.* It was returned in due time. Allow me to quote from his first letter.

"My dear Dr. Squires:—

"I have your letter of June 25th, transmitting your article 'A Plea for Individual Prescription Writing' which latter I have read with much pleasure and interest. I must decline, however, to publish the paper, not because of any lack of appreciation of its *importance and worthiness,* (italics mine), but for reasons which I shall endeavor to make clear to you as follows:" He then goes on to tell of libel suits that have been brought against the *Dental Cosmos* in the past, due to editorials, etc., on certain preparations. That they have always won their case, but with considerable time and expense.

He then says:

"It is for these reasons and these alone that I do not feel justified in publishing your paper. It is extremely interesting and I should be glad to see it published, but I ask you in all candor whether you think that I should pay the price."

And I in "all candor," most emphatically say yes. A journal that emblazons upon its cover "Devoted to the Interests of the

Dental Profession" should have the courage to speak the truth on any subject which is of interest to the dental profession, regardless of the cost.

In my reply I asked if he thought President Roosevelt considered the cost before exposing deception and fraud wherever found. If Bok, editor of *World's Work, Collier's* and others, considered the cost in exposing the so-called "patent medicine" frauds. If the editor of the American Medical Association's Journal considered the cost in showing up the medical nostrum.

No. These men have the courage of their convictions, and are always ready to state the truth regardless of the cost.

In his second letter he says:

"On my return from Europe, I find your letter of July 16th, on my desk, which I have read carefully, and thank you for the very frank expression of your views."

He then goes on to say that he thinks I do not fully understand him and endeavors to elucidate by saying: "I grant fully every one of your contentions as to the magnitude of the evil variously described as the nostrum evil, patent medicine humbug, and all that sort of thing. I have kept fairly in touch with the crusade which has been made against these things, and I am heartily in accord with any legitimate movement instituted for the purpose of bettering the conditions about which you write." And again:

"The real sufferers from the nostrum evil are those who use them, and why we should incur a heavy expense in defending libel suits, in other words, pay the price of a warfare which the dental profession itself should pay for, is not quite clear to me."

And this by the editor of a journal whose owners as the editor of the American Medical Association's Journal pertinently puts it: "Lives upon your (our) profession."

Again he says: "I can see no more good reason why we should, because of the ignorance of dentist's who will persist in using nostrums, enter into legal contentions and pay the bills for them than we should enter into a crusade against the rumseller, because a lot of fool dentists choose to get drunk once in a while.

"If the dental profession suffers from the nostrum evil, the proper course for the dental profession to take would be to organize a movement in its associations which would tend to correct the evil." And this by the editor of a journal that claims to be "Devoted to the Interests of the Dental Profession."

I maintain that the *Dental Cosmos* is not devoted, primarily, to the interest of the dental profession, but to the "almighty dollar" and that it would not exist a twelve-month if it were not for the advertising medium it furnished to the S. S. White Dental Mfg. Co.

Let me quote him once more: "The grip which the 'proprietary people have upon the dental profession' owes all of its tenacity, in my jugment, to the willingness of the dental profession to be humbugged, and their willingness to be humbugged is based largely upon their ignorance of scientific materia medica and therapeutics."

If this is the reason then why, pray, should not a journal "Devoted to the Interests of the Dental Profession" do all in its power to educate the profession in materia medica and therapeutics so that it will not be "humbugged?"

One of the chief aims of the American Medical Association's Journal is to educate its members on any subject in which it feels they are in need. A few years ago it came to the conclusion that medical men were being unmercifully humbugged by the nostrum venders.

It started in on a campaign of education on this subject and the good it has already accomplished for the profession is most remarkable.

On the cover of the *Dental Cosmos* are these impressive words: "Observe, Compare, Reflect, Record."

I ask you to "observe" the attitude of the *Dental Cosmos* on this nostrum question, which the editor admits is an evil of magnitude, and "compare" it with the great work of the American Medical Association's Journal is doing for its profession along these lines.

I ask you to "reflect" on this: That the *Dental Cosmos* has always posed as being a little more professional than the other trade journals, and "record" this fact: That the editor of this journal refused to publish a paper. Why? Because it was poor? No! Because it was of no special interest? No! He admits that the paper is of "importance and worthiness" and that it is dealing with a subject of magnitude. He refuses to publish it because it might cost the owners a few dollars to defend the truth. The owners who have become plethoric through the dental profession.

Don't forget the mottoes on the cover: "Devoted to the Interests of the Dental Profession," and "Observe, Compare, Reflect, Record."

I sent this paper to one other trade journal and in reply received a letter from one who, in my estimation, was the first to give me a frank reply. Allow me to quote from this communication:

"My dear doctor:— * * * When I wrote you last, I took up the consideration of your excellent paper and decided to use it in the *Digest,* providing, of course, Dr. Crouse would O. K. it.* * *

"I returned the manuscript to him and of course do not know what he will do with it.

"Sanitol and Glyco-Thymoline are such good advertisers that I doubt whether or not any of the journals will have the moral back-bone to print your paper.

"Personally, I should like to see the paper published."

Later I received a communication from the publishers. Did they say they did not care to print the paper for fear it might hurt their advertising department? Not at all. They returned with the manuscript a formal and meaningless reply, which is I presume, "The Editorial Prerogative."

Now, let us see what the editor of a real professional journal thinks of this extremely libellous (?) manuscript.

The editor of the American Medical Association's Journal, hearing that this paper had been refused by three leading dental trade-journals, expressed a desire to read it. Following is his letter:

"*Dear Doctor*—I have read with a good deal of interest your paper on the nostrum business. I wish you would get up a paper like this for the Section on Stomatology of the American Medical Association. It certainly ought to be published, for its publication would do much good. Probably if it was read before the Section mentioned, some of the dental journals might be willing to publish it. We certainly should be glad to do so.

Again thanking you for the privilege of reading your article, I am,

Very truly yours,

GEO. H. SIMMONS."

In other words, ladies and gentlemen, in order to publish the truth about the dental nostrum we must get under the protecting arm of the medical profession.

When I wagered with the editor of the Boston and Tufts Dental Alumni that there was not a trade journal published that had the courage to print the paper, the editor of *Items of Interest* became "exceedingly wroth." Said it was an insult to these able journals, etc. I maintain that subsequent events have proved that my wager was conservative and safe.

In this August editorial under discussion are eight free information statements in regard to the *Dental Cosmos.*

The first one reads:

"Its text pages are not controlled by any supply house, but are controlled absolutely and exclusively by the editor."

Accepting this; it is still quite possible that the editor may be biased because of the fact that a supply-house is the owner of his journal.

For example, I cannot imagine an editor of a trade-journal denouncing, editorially or otherwise, some preparation manufactured or controlled by the owner of the journal.

The S. S. White Dental Mfg. Co. not very long ago were sole agents for a preparation that gave all of its ingredients. At least one would reasonably think so by reading the description of said preparation in their drug catalogue. But the Pure Food and Drug Law brought out the significant fact that this article contained what it did not state to the profession. Namely, four grains to the ounce of that powerful chemical hydrated chloral. A drug, which to be sold legally in this State, must be registered as a poison or prescribed by a doctor.

I have seen no editorial in the *Cosmos* criticising the agents or owners for this piece of deception. Perhaps the agents were ignorant.

In any event I do not believe the editor of the American Medical Association's Journal would allow such a thing to pass unrebuked.

In statement 7, he says: "The editor rejects all articles that are essentially unethical in fact or by implication, and in his concept of "unethical" he includes that fundamental concept of ethics so generally disregarded by many who would consider themselves ethically damned for using or recommending Mrs. Winslow's soothing syrup, but who do not for a moment consider it unethical to bear false witness against one's neighbor." I surely should consider myself "ethically damned" if I used or prescribed this morphine-laden nostrum.

But why does the editor lay so much stress on the Mosaic law and is so lenient towards our profession in its violation of the code in regard to the "monetary aspect" as he terms it?

In an editorial of March, 1907, he criticises our code for being too emphatic in denouncing as unprofessional those who resort to public advertising and who "circulate or recommend nostrums," but says we are not emphatic enough on matters relating to filching of character.

One would think by this editorial that members of the dental profession were going about blackguarding one another. I claim such insinuations are unwarranted reflections on our dental societies.

Furthermore the comparison is not only odious but weak. Where the editor can name one member of a dental society who is bearing false witness against his neighbor, I can name fifty who are using unethical preparations, and this latter condition is due largely to the dental trade-journals who are constantly advertising these nostrums.

In statement Eight he objects to the terms "fraud," "dishonest," etc. Personally I fail to see why a fraud should not be designated by its proper term, and if a man or corporation is known to be dishonest, it is a weakling who is afraid to state the fact.

In regard to this pseudo-politeness, the editor of the Druggist Circular in commenting on the nostrum question says that, "the American Medical Association's Journal in calling ' a spade a spade,' is setting a pace that the trade-journals dare not attempt to follow."

The editor in his communications to me, and in the August editorial, frequently refers to imaginary libel suits, and says I do not seem to know that the republication of an article would lay the Dental Cosmos open to action for libel equally with the original publishers.

Considering that the article I asked him to republish (the report of the Council on Pharmacy and Chemistry of the American Medical Association showing up Antikamina, Ammonal and other nostrums) had been out about two years and had been republished by the Druggist Circular, the California State Medical Association's Journal and others, before I asked him to publish it; this reason, to put it mildly, is decidedly weak.

The editor misquotes me in regard to boycotting dental journals.

What I did advise was to cease subscribing to, and discontinue using the goods of those publishers who carried the more objectionable nostrum advertisements. After we had brought them to book to turn our attention to the Dental Cosmos and others that carried those of a less brazen type. This is perfectly practical and if the profession united, the trade-journals would have to comply with our demands.

The editor waxes sarcastic when he says that if I should discontinue my subscription to the Cosmos I could no doubt borrow the issues from my friends.

Could not his intimation that the dental profession's existence is dependant upon the Dental Cosmos be consistantly diagnosed as a true case of "overdeveloped ego?"

The editor points with pride to his editorials on the nostrum question.

We duly acknowledge these, but must remember that three or four editorials written over a period of fourteen years does not offset the 168 fairy tales told by each nostrum vender in his and other trade-journals during the same period. The most recent editorial he refers to was written twelve years ago.

I wish to call your attention to another incident connected with my remarks at the annual meeting in which the editor calls me to account, but which is not referred to in the editorial.

The following letter explains:

"Dear Sir: In my previous letter I omitted to mention that the formula for a powder dentifrice recommended by you in your address before the Massachusetts State Dental Society and containing sodium perborate, is a proprietary product, being the subject of United States patent No. 802,099, issued to E. H. Gane, October 17, 1905, and is, I believe, one of the basal patents under which the dentifrice known as Calox is manufactured by McKesson & Robbins, of New York.

"Very truly yours,
"EDWARD C. KIRK."

To this I replied as follows:

"Dear Sir: In regard to your other communication, July 23, I beg to say that I have not consulted my lawyers except in a general way on this matter. But considering that I have the necessary degrees to legally write prescriptions, I do not believe there is any patent law which prevents me from prescribing any drug or chemical for my patients, that in my judgment I deem expedient.

"In regard to sodium perborate being a proprietary product, as I understand the matter, this salt is manufactured and listed by different firms under its chemical name. If this is a fact, pray who is the proprietor?"

I do not wish to misjudge, but does it not look as if the writer was a little troubled lest I should give something gratis to the profession that might interfere with the commercial success of Calox?

This suspicion is strengthened when we consult the United States Patent Office and find that the first patent on Calox was taken out by Edward C. Kirk, of Lansdowne, Penn.

While digressing, allow me to touch upon these two patents on Calox. One-half of the first or Kirk's patent is assigned to William James Evans and Eustace Harold Gane. The second patent, obtained by Eustace Harold Gane is assigned to McKesson & Robbins.

The first one says, among other things: "The invention therefore consists in combining with any of the usual well-known or suitable tooth-powder materials * * * One of the dioxids of the Alkaline-earth metals." And the second one says: "My invention comprehends a powdered dentifrice having as an ingredient percarbonates or perborates of the alkali anl alkaline-earth metals which when brought in contact with moisture undergo decomposition, resulting in the formation of hydrogen dioxid * * * As, for example, a percarbonate or perborate of ammonium, sodium, potassium, calcium, or magnesium can be employed with great success, as I have found by experiments * * * In this specification I have employed the terms 'percarbonates' and 'perborates' and 'alkali' and 'alkaline' earth metals as equivalents, and therefore in defining the invention in the claims I desire it understood that by the employment of either of such expressions the same is intended to include those equivalent substances, and is not to be limited to the specific material stated in the claims."

These patents, controlled by Kirk, Gane, and McKesson & Robbins, attempt to cover practically all of the dioxids of the alkaline-earth metals and the percarbonates and perborate alkali and alkaline-earth metals. In other words their apparent object is to prevent any other manufacturer from putting an oxygen tooth-powder before the dental profession.

This may not be a violation of the Mosaic law; but one surely could not consider such methods "devoted to the interest of the dental profession."

I maintain that every dentist that claims to be a professional man should denounce this exhibition of commercial greed.

All through this August editorial the writer lays especial emphasis on one thing, namely, that Dr. Fisher and myself do not state facts. In other words, do not known what we are talking about.

We should therefore expect that the editor would be very careful in his statements.

Let me call your attention to the paragraph in which he states in effect, that no proprietary preparation is advertised in the Dental Cosmos that would not be accepted by the American Medical Association's Journal.

After reading this remarkable statement, I turned to the advertising pages and found the advertisements of seven preparations that would be classed as remedial or prophylatic.

Flattering myself that I was somewhat familiar with the rules of the Council on Pharmacy and Chemistry, I felt positive that at least five of these preparations would not be allowed advertising space in the American Medical Association's Journal. But wishing to give you more than my "say so" I wrote the following letter:

"Council on Pharmacy and Chemistry of the American Medical Association.

"Dear Sir: In the August, 1907, issue of the Dental Cosmos the editor makes the following statement: 'No proprietary preparation finds a place in its advertising pages unless its composition is known substantially in accordance with the same standards as recently specified by the ruling of the American Medical Association."

"In this same issue are the advertisements of Thycalol, Listerine Tooth Powder, Waite's Local Anesthetic, Wilson's Local Anaesthetic and Antiphlogistine. I enclose their respective formulas as given to the profession.

"Would these preparations be allowed to advertise in the American Medical Association's Journal?

"Thanking you in advance, I am,

"Very sincerely yours,

"G. B. SQUIRES."

I quote from the reply received from W. A. Puckner, Ph. G., a member of the Council.

"Dear Doctor: I have received your letter of October 31, and also a copy of the Dental Cosmos. From the editorial in the latter, I note that—as is the case with journals of this kind—the editor is responsible for the text pages, but the advertising matter is controlled by those financially interested in the journal. That something is being accomplished, I thing is well shown when the editor feels called upon to defend himself as he does.

"I shall be pleased to help you in this work insofar as I can, and I trust that the following reply is satisfactory:

"Your inquiry may be replied to under two headings: First, would the preparations named be allowed to advertise in the Journal of the American Medical Association? Second, is the composition of these substances known 'in accordance with the same standards as recently specified by the ruling of the American Medical Association?' Or, in other words, does it comply with Rule 1 of the rules governing the admission of 'articles to the book New and Non-Official Remedies' and adopted by the council on Pharmacy and Chemistry of the American Medical Association, viz: 'No article shall be admitted unless its active medicinal ingredients in a given quantity of the article be furnished for publication. The general composition of the vehicle, its alcoholic percentage, if any, and the identity of other preservatives, if present, must be furnished.

"Advertisements for proprietary articles are admitted to the Journal of the American Medical Association only on condition that the articles have been examined and approved by the Council on Pharmacy and Chemistry. Thy-ca-lol, Listerine Tooth-Powder, and Wilson's Local Anesthetic have not been considered by the Council. As the Council considers only articles used in the treatment of diseases, Listerine Tooth Powder would hardly come within its province.

"*Waite's Local Anesthetic:*" This article was considered by the Council, but was refused recognition because it did not comply with the rules of the Council, especially Rules 1 and 6—the latter of which states: 'No article will be admitted or retained of which the manufacturer, or his agents, make unwarranted, exaggerated or misleading statements as to therapeutic value.'

"*Antiphlogistine:*" This preparation was considered by the Council, but was refused recognition because it did not comply with the rules, especially Rule 6. You no doubt are familiar with the exaggerated and absurd statements made for this preparation. If you are not, please refer to the Journal, June 1, 1907, page 1875.

In the circular which you send, it is stated that *Thy-ca-lol*
"As regards the second portion of your inquiry:
'is a fluid combination of the constituents of thyme, encalyptus, menthaarvensis and gaultheria, in combination with borobenzoate of soda and catecha.' Since the quantities of the medicinal ingredients are not stated, the preparation does not comply with Rule 1 of the Council.

"*Listerine Tooth Powder:*" The formula for Listerine Tooth Powder given in the Dental Cosmos, August, 1907, advertising page 59, does not comply with Rule 1. * * *

"*Wilson's Local Anesthetic:*" The statement made of the ingredients for this preparation, which is printed on the circular which you sent, does not give the quantities of the ingredients and therefore conflicts with Rule 1 of the Council. * * *

Very truly yours,
W. A. PUCKNER,
Secretary.

In other words, gentlemen, 70 per cent of the remedial and prophylactic preparations, advertised in the *very issue* of the Dental Cosmos containing the editorial under consideration, would not be allowed space in the American Medical Association's Journal. In other words, are classed as *nostrums*.

And yet the editor says I have gone "far a field" in presuming to criticise the *Dental Cosmos* on the Nostrum question.

I maintain that we have come to the parting of the ways. We cannot longer afford to send professional matters to a commercial magazine.

At our last annual meeting we passed the following rule to apply to the exhibits of remedial and prophylactic remedies: "No such article shall be admitted unless its active ingredients and the amounts of such ingredients in a given quantity of the article be furnished. The general composition of the vehicle, its alcoholic percentage, if any, and the identity of other preservatives, if present, must be furnished."

How we can consistently send our proceedings to a journal that violates this rule every month it is published.

I feel positive that the Council of the Massachusetts Dental Society will see that this anomaly is not continued.

We shall not be a true profession until we have, like the medical profession, a journal representing the whole profession, and supported by the different State Societies. A journal conducted and owned by the dental profession.

A journal untrammeled by the influence and unfettered from the grip of any dental supply house.

We already have such a journal started. Let each of us do all in our power to make this grow and become a true mouthpiece of the dental profession.

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DISCUSSION BY HAROLD WILLIAMS, A. B., M. D.*

OF DR. WOODBURY'S PAPER "A CRUSADE FOR BETTER CARE OF THE TEETH."

I have listened with a great deal of interest to Dr. Woodbury's very excellent paper. To most of what he has said I can heartily subscribe, and I think he has brought an earnestness and a conviction into the discussion which is of the utmost value. It seems to me that nothing is more needful than this earnest conviction in the furtherance of the cause and I think that one reason why relatively so little has been done to impress upon the public the value of dentistry as a branch of preventive medicine is because of the lack of earnest presentation of the subject by the dentists themselves. I have always contended that the dentists are too modest in the presentation of their case. I take it that at the present time no member of the medical or dental profession feels the least doubt in his own mind of the very high place which dentistry occupies as a factor in the prevention of disease. Impressive examples are increasingly being afforded us by bacteriological studies of the mouth. Take for a single example the studies on the pneumococcus by the Medical Commission for the Investigation of Acute Respiratory Diseases of the Department of Health of the City of New York. These studies are made by many observers and in different cities. They were instituted because of the fact that in New York City in the 10 years from 1883 to 1893 the death rate from acute respiratory diseases shows a relative increase of 100 per cent. In the course of this investigation Drs. Duval and Lewis of the Pathological Department of the Boston City Hospital examined the saliva of 24 healthy individuals, none of whom had ever had pneumonia, and all of whom were in perfect health. In every one the pneumococcus was found. Netter put the occurrence of the pneumococcus in normal mouths at 20 per cent.

This instance is offered as a single example. It could easily be reduplicated and it could almost be paralled by other disease-causing bacteria. As a general proposition it may be stated that the more hygienic the condition of the mouth the less the growth of pathogenic organisms, and conversely the more neglected the mouth, the more favorable the conditions for the growth of pathogenic organisms.

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* Read before the Boston and Tufts Dental Alumni Association, December, 1907.

The question before us is, not as to the necessity of dentistry and oral hygiene, but how we are to impress the public with the reality of this claim. On other occasions I have endeavored to show how little this claim seems to be realized—how in Boston, for example, where 500,000 persons annually seek relief at free medical charities, but one-tenth of that number apply for the benefits of free dentistry. The tremendous discrepancy of these figures seem to me to conclusively show how little dentistry is appreciated by the general public, and I venture to say that the public estimate of the necessity of dentistry is based almost entirely at the present time upon reasons of comfort and aestheticism. As a hygienic necessity—as a branch of medicine capable of preventing disease, I do not believe that the public at large have the faintest conception of the high position occupied by dentistry. This aspect of dental science is the view which it should be our object to present in the strongest possible light to the public, and no dentist does his full duty who omits to impress upon his patients and the general public the high importance of sound teeth, and clean mouths in the prevention of disease. The promulgation of such knowledge should begin with the children. There are 17,000,000 future citizens at the present time in the public schools of the United States. Seventeen million children, of whom probably ninety per cent are suffering from dental caries, and from a condition of the oral cavity favoring the development of disease. The true dissemination of knowledge should begin with these seventeen million children.

As Physician to the children at the Boston Dispensary for many years, when thousands of children have come under my observation, and as Dean of the Tufts College Dental School where I have daily observed many thousand children with diseased conditions of the oral cavity, I have been deeply impressed with the coincidence of retarded development, malnutrition, anaemic conditions, and structural disease with the condition of dental caries and diseased mouths, and I believe that no occasion should be lost in impressing the coincidence of these conditions upon parents and teachers. To correct these conditions is a far more difficult problem.

From the nature of things it is a far more difficult thing to provide for dental treatment to the poor than to afford them free medical treatment. At my medical clinic, for example, it was not an unusual thing for me personally to treat fifty or one hundred children at a morning session. Such a performance would obviously be a physically impossible thing for a dentist to accomplish and it is in this very respect that the difficulty of affording free dentistry lies. It is the time required for the performance of conservative dental operations. In the old days when the barbarous practice of extracting every aching tooth prevailed the subject presented little difficulty. But now when we realize the high importance of the preservation of the temporary teeth until the expansion of the arch becomes completed—when we appreciate the importance of the subsequent conservative treatment of the permanent teeth, we are confronted by a question of the greatest difficulty, but a question nevertheless which must be faced in the near future.

The obvious solution to this question lies in two chief directions: First we must prevent, so far as possible, the incidence of disease by dissemination of knowledge of the hygiene of the mouth. It seems to me that this important subject should be taught in every school. Children should be made to realize the value of a sound set of teeth. They should be taught their anatomy—their physical functions, the part they play in the general economy, their pathology and bacteriology, and the care which conduces to their preservation. These lectures which should be popular in their form could be made exceedingly interesting as well as instructive; the evolution of the tooth; the tooth characteristics in the different classes of animals; the development of the tooth are all subjects calculated to interest children in the highest degree, and a short series of lectures, say from four to six in number, concluding with the care of the teeth, would in my opinion, be of the utmost value as a preventive expedient.

To the end indicated above, I believe that much could be accomplished by annual series of lectures given in every school by members of the dental profession. Such a course seems to me of for more practical value than much of the so-called physiology at present taught.

Having done what we can for the prevention of disease by the dissemination of knowledge, the second step must be in the arrest of disease already prevailing. It has been thought by some that the appointment of dentists for the schools would afford a solution of this question. This, I believe, would be an ideal plan could it be carried out in practice, and as a contributive factor to the health of the community I believe it would be a wise investment of the public money. A certain minimum of conservative free treatment might be afforded to the children of parents who satisfied the principal of the school that they were unable to pay for the necessary dental treatment.

A second method of providing for such treatment would be the proper endowment of the present existing institutions supplying free dentistry. Our own institution, with adequate endowment could accomplish a greatly increased field of usefulness. With public endowment, branch dental dispensaries could also be established in different quarters of our larger cities, and smaller dispensaries could be instituted in the larger towns. Personally, I should be glad to see dental clinics established at the hospitals. These clinics could be under the direct charge of the dental schools, who could assign salaried officials of the schools as supervising officers and the work could be performed by students as part of their dental curriculum under their direction, in a manner similar to the method in vogue in the existing dental infirmaries. Such dispensaries and clinics instead of interfering with the private practices of the dentists would tend to augment them by contributing to convince the public with the necessity of dentistry from an hygienic point of view. Dentistry seems to me, in short, to be an undeveloped field, a field capable of the largest cultivation if the dentists themselves would only stand shoulder to shoulder together, and convince the public of its enormous capabilities for good by insisting upon its hygienic possibilities.

AMERICAN ACADEMY OF DENTAL SCIENCE.

The regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel Wednesday evening. January 1, 1908, at 6 o'clock. The business meeting was followed by a banquet, after which papers were read as follows:

Paper, by Lawrence W. Baker, D. M. D., Boston, Mass. Subject, "Dental Caries as Cause of Other Diseases."

(For Dr. Baker's paper see page 17.)

Paper, by C. W. Staples, D. D. S., Boston, Mass. Subject, "Bacteria of the Mouth, a Factor in Systemic Diseases," illustrated by stereopticon.

(For Dr. Staple's paper see page 34.)

Discussion.

William H. Woodbury, M. D.: Mr. President and Gentlemen—We are all grateful for these papers in proving what all of us know and in emphazing the fact that this work ought to be carried home.

To Dr. Baker and Dr. Staples we are indebted for the good work they have done, and for these interesting papers they have given us. In the whole range of hygiene there is no one single thing more important than the hygiene of the mouth. A dental school does its best and broadest work in promoting oral hygiene; and the educational work of instructing the people how to keep their teeth and mouth clean—how to save their teeth—is an undertaking of the highest importance.

The active interest that both of the dental schools in Boston have taken in this educative movement, is sure to bring large benefits both to the public and to themselves. These two schools represent more than New England; they are the two largest dental schools east of Chicago and north of Philadelphia. Their endorsement of a popular movement for the better care of the teeth means much.

Since I was your guest in October this crusade has been joined by the Boston Normal School, the Boston City Hospital, Wellesley College and Filene's. The City Hospital is distributing to its patients the leaflet on the care and use of the teeth; and Filene's have distributed among its employees six hundred of the leaflets.

Nutrition, growth and the capacity for work and recreation depend in no small way upon the condition of the mouth. Appetite should be kept true to the needs of the body, but it can not be kept true when the mouth is foul from neglect. Bad eating habits in quality, in quantity, and in manner, are important factors either as cause or disturbing elements in most, if not in all, nervous disorders and conditions in childhood, adolescence and adulthood. Chorea, Neurasthenia and every nervous disorder or disease is emphasized by neglected teeth. Good sound teeth are needed for complete and satisfactory living. Infectious diseases and alcoholism (a disease) are helped by dirty mouths.

Money spent for prevention, for saving the teeth, is a financial saving. It is a good investment. It would help save some of the money now being spent by cities and the State for hospitals and institutions.

The child who leaves school to go to work needs good health—needs good teeth. Good health is the working man's or working woman's business capital. The child must be more than 14 years of age; must present evidence of age through a birth certificate, passport, certificate of baptism or other documentary evidence; must present a school record showing ability to read and write simple sentences in the English language, a familiarity with simple arithmetic through fractions; be in good physical condition. The words 'good physical condition appear in the statute, and after such physical tests as ought to be applied, hardly more than one-fourth of the children presenting themselves for permits to work would pass the examination.

The child who presents himself for a certificate, is badly nourished, below weight and under height, though upon questioning him, the manner of family living indicates that he doubtless has sufficient coarse food. Examination reveals the fact that his teeth are in a wretched condition, that his tonsils almost fill his throat and that pharyngeal cavity is obstructed by adenoids.

This is the type of a child, who though he has food, cannot eat and digest as he ought because of bad teeth and sore gums, though he has air he cannot breathe as he ought because of an obstructed nose and throat. Is it wonderful then that the nutrition of such a child is impaired? And we are going to take this child in years, who never was a real child in thought or action, and make him part of a great commercial machine!

But this is not all. The child has a stunted body and deformed face. His vision is reduced, and his hearing is reduced one-third. If smell and taste were examined, they would doubtless show under-development; and he has a slovenly bodily carriage.

It may be said that such children are uncommon specimens of American boyhood and girlhood, but this unfortunately is not so. The reports of the examinations of the children in the schools in some of the large American cities show that a considerable number of American children are physically, and, therefore, mentally deficient. In 1906, in one city, of 1,604 children who applied for certificates for work, 215, or more than 13 per cent., were refused because they showed evident signs of lack of physical development. Seventy-five per cent. of these children would have been prevented from going to work under a rigid system of physical and mental examination.

What are we to do for the child who works? If the State undertakes to insure an education for its children, can it do less than to provide for that personal hygiene of the child which shall make for the best physical condition its heredity will permit? Parents should begin to understand the effects of decayed teeth, large tonsils, adenoids, reduced vision and hearing, and sense development of the child as a child, or upon the man or woman that is to be. Stunted, flat-chested and deformed in face, these children are possible parents. We are sending medical missionaries abroad. There is need of medical missionaries at home.

Generally it is too late to altogeter restore the child to the normal by removing its defects when it applies for a certificate to work. The physical defects which result in mal-development must be attended to at the earliest possible moment. The sense, digestive and respiratory apparatus should be carefully watched through all the child's budding years, of the children who work. Three-fourths of them have gross physical defects which demand repair. 'He don' work mit his teet,' said one woman when shown her boy's mouth full of rotting snags. No, but his body depends for its nutrition upon the use of sound teeth and a clean mouth, and upon a clean nose, free to strain air through wide nostrils, instead of little misshapen ones due to the adenoids and tonsils behind them.

Children who do not chew well and breathe well are stupid, unable to learn, therefore backward in school, and frequently lapse into conditions that border on juvenile delinquency. From the ranks of such neglected children is enlisted the great army of the dependent, the sick, the criminality and insanity are only marked forms of sickness. It is, therefore, possible to lessen the State's machinery for the treatment of the sick, and for the control and punishment of crime if we early attend to the physical conditions of the child.

Those children whose nutrition is high, whose mouths, noses and throats are clean less frequently contract the diseases of childhood, such as scarlet fever, diphtheria, measles and whooping cough. An attack of any one of these diseases is a blow at the child's physical development from which it may never entirely recover. The taking up of the cause of physical betterment in children is a movement most decidedly worth while.

Mr. Walter Kruesi, Secretary of Boston Association for the Relief and Control of Tuberculosis: I am very much interested in all health topics and the work of preventing disease. I have a number of exhibits that I thought would be the most interesting thing I could bring to this meeting. I have a number of publications of Professor Dr. Jesson, who laid the foundation for this work of school clinics, which has now spread through Germany. I am sure that Dr. Jesson would be glad to furnish the pamphlets to you as he was to me.

I want to mention one or two things that I notice in the addresses of Drs. Baker and Staples. Dr. Baker spoke at some length of the very great likelihood of spreading infection through sneezing, etc., called spray infection, speaking of the very great radius which this may throw disease germs. In tuberculosis campaigns it is one of our objects with all patients to train them to cover their nose and mouth when they cough or sneeze to lessen the possibility of spreading infection of pneumonia or influenza.

The Chicago Board of Health recently advised that to prevent the spread of influenza people should walk instead of riding in order to avoid infection in closed vehicles.

Another thing is that through the breaking down of the oral tissues we have gastric and a number of actual, immediate infections.

Tuberculosis and pneumonia are the final infections and mark the final breakdown of the tissues. The dentist may be one of the greatest powers in the work of preventing the spread of tuberculosis, pneumonia, etc., which are now causing such great havoc.

Tuberculosis and pneumonia cause 20% of all deaths. To cut this out will be an immense human service. The dentists get the first chance at disease prevention in the individual.

The health associations deal with the general public education in regard to hygiene and prophylaxis. I come to strongly indorse the statement of Dr. Baker, in which he seeks to have some training in the care of the teeth introduced in some hospital course. Clergymen and public men ought to have such lectures as we have had to-night. I sometimes doubt if they have them when I see things that go on.

Dr. Staples taught me in regard to the possible toxic effects of non-pathogenic germs.

Here are some illustrations made up in Germany sent to me to-day from the State Department in Germany. In this work America is ten years behind. There are some fourteen cities in England in which public dental work is being done, thirty-three in Germany, two in the United States. These tables show statistics in regard to extent, cost and details of this dental work and examination.

The point that teeth are an important asset economically should not be overlooked in talking to public bodies.

The teeth are the second direct indicator of character of the face, the eyes being first; they are a factor in making or marring the beauty of an individual.

The great conquests of disease have been prevented. Lister, Pasteur and others of wide reputation have done this. Dentists should preserve the teeth, straighten crooked ones, prevent untimely loosening, etc.

Dentists can make mothers realize that the milk teeth are of greatest importance and that their long life will make sound second teeth. Every child ought to be taken to the dentist before the tenth year and afterward every six months.

Some people may say that Boston is bankrupt. And yet no one of us would think it was economical to omit drainage. Nor can we expect to omit good teeth at the entrance to the human body. All pathogenic influences that plague man are to be found in the oral cavity. In Germany the cost of the official school examination is 7 cents per child. Where treatment was necessary the cost was 25 cents. It is only necessary to convince people of the importance of it for the work to be taken up. In New York less than 10% of the children ever receive any dental care. The only school dental clinic is in a private trade school. In New York they sent reply postals to parents asking them to have the children come to the public free dental clinic. The thing to do is to go over frankly to the German position of having a school dental clinic to do the necessary dental work. There are 299,600 school children in New York who have defective teeth. On that basis there are 9,000,000 in the United States who ought to have their teeth attended to.

About the German results I will state as follows: In regard to the humanitarian, etc., effects on the children, it had a marked effect in securing regularly of attendance at school. The scholars have progressed more rapidly. The general health of those who have received dental care, extractions, etc., has been distinctly improved. The question of loss of time in having the children go to the dental clinic has been entirely dissipated.

Dr. Samuel A. Hopkins: This subject involves so much that it seems to be at the very foundation of the health and prosperity of our nation. I know of no more important subject to work for and I am delighted as we all are that so many members of this society are deeply interested in this work. Of course, what the last speaker said is true, and we have not yet provided facilities for this. But this is not the way to make public opinion. I have been interested in my own work in the transmission of disease through the mouth. As bearing out what the speakers have said I will refer to some work that I did a year or two ago and which I am still continuing. I tried taking some particular mouths and isolating some pathogenic forms. It is easy to get hold of many common bacilli.

I think the connection was perfectly clear in a few cases. On the other hand the pneumococcus was found in 20% of all mouths. Generally speaking, this is an extremely common organism. Happily it can be very easily gotten rid of. Where the mouth was put in good condition and the patients given instruction to care for the teeth it was extremely difficult at the end of three weeks to find the pneumococcus in the mouth. It was found the virulence was much abated after proper treatment and cleansing. When innoculated into small animals it was very much diminished.

This paper is very practical. Most cases of pneumonia following anaesthesia could be prevented if the teeth were properly cared for before the patient took the anaesthetic. I think that in the majority of perhaps all of pneumonia following anaesthesia might be prevented in that way. I should hope that in the connection we might get nearer the causes of these conditions.

While the plates were very graphic and showed the condition of a very large percentage of children, yet we do see remarkable cases of freedom from dental diseases where very little care has been given. The presence of bacteria does not in all cases cause dental disease. So there is something behind this in the condition of the saliva or connected with the amount of mucin in the mouth, the saliva from one being a better culture medium than that of another. Those questions we are anxious to solve if we are to prevent and cure the cases that already exist. One thing is certain that there will be no growth without a culture medium.

Dr. Alexander J. Wright, of Perth, West Australia: Mr. Chairman and Gentlemen—I have very great pleasure to-night in being present to hear the addresses. I think that if an address like that given by Dr. Baker could be given to the public schools it would have much greater value than our individual efforts. This is more difficult in Australia than here, because of the scarcity of dental schools. I suppose we extract twenty times the teeth that you do here, because the mouths are many of them in so deplorable a conditon. In some cases the patients are not to be persuaded of the benefits of saving the teeth. Another point of great importance relates to the physician and surgeon. A surgeon will very often operate on the throat without even attempting to see that the teeth are in proper condition. In one family seven children were to have the tonsils removed. I spoke to the father of the children and asked him to remove the bad teeth and then to try some treatment before the removal of the tonsils. After this was done the tonsils removed themselves without operation, after the fixing of the teeth. With a little more care on the part of the physician and surgeon a great deal of this might be done. I think it would be a good move if eye, ear, nose and throat specialists were made members of a dental association that each might refer to the other's work that should be done.

Dr. George H. Wright: I wish to report as an indication of a further interest in this work of the care of the teeth that the physicians are taking a more active interest. Many specialists of the nose, throat and ear are organizing to have a better understanding of dental diseases. I am interested in a group of young men who are specializing in rhinology, who are studying the relation of disease of the nose, throat and larnyx to the mouth.

Dr. Robert R. Andrews: Just a word about the Cambridge schools. A lady asked me if it was possible to get up a school clinic for poor children in Cambridge. I think we may safely say yes in another year. How are we going to treat this people? We have promises that if a clinic be opened in Cambridge that students of the Boston schools, advanced students, may be allowed to come over to do the work. Talking to the people to awaken public interest has been found to give good results.

Dr. Horatio C. Meriam: My first paper in 1874 was in the interdependence of the various parts of the body. So I am much interested in this subject. When the doctor spoke of a human culture tube I thought of how the various secretions and decomposing food sometimes give the conditions that breed cavities. In connection with this I would like to emphasize the use of nitrate of silver. In a case I had a while ago a few moments' use of nitrate of silver around the borders of the teeth prevented all future pain and trouble.

A rising vote of thanks was given to the essayists, Dr. Lawrence W. Baker and Dr. C. W. Staples, for their most interesting papers, illustrations and statistics.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held Tuesday evening, January 7th, 1908, at the Hotel St. Margaret, No. 129 West 47th street.

The President, Dr. Chas. O. Kimball, occupied the chair.

The minutes of the last regular meeting were read and approved.

COMMUNICATIONS ON THEORY AND PRACTICE.

Zinc Chloride—Some of Its Dental Uses.

BY J. MORGAN HOWE, M. D. S., M. D.

Although the virtues of zinc chloride as a medicament in dental practice are recorded in many old works on practice, and in Materia Medica, there seems to be a tendency to lose sight of it, both by those who write text books, and by pratitioners. It is commended for certain purposes in the *American Text Book of Operative Dentistry,* but it is not mentioned, so far as I can find, in the American System of Dentistry, and I have no knowledge of its use in recent years by practitioners. I know of two proprietary lotions that contain it, adding thereby to their effectiveness. The impressions made by modern advertising, with the great multiplicity of secret compounds having the pecuniary interest of their owners behind them, has, I fear, a potent influence to divert the mind of a large proportion of dental practitioners from the use of old and well tried means and methods. Perhaps this is one reason why zinc chloride seems to be an overlooked agent, having certain definite properties that were formerly much valued.

The crude salt has a very old reputation for obtunding the sensitiveness of dentine, but its usefulness was much restricted by the pain produced from its application. This is probably due in a very large degree by its active dehydrating power as well as by its caustic action. This objection is largely overcome, if it is used to follow an application of cocaine. Aqueous or etherial solutions of cocaine applied to dentine have a varying effect, and when this is found to be inadequate for cavity preparation, it still seems to be sufficient to decidedly modify or annul the painfulness of zinc chloride, which may follow it with little or no pain and with decided obtunding effect. For this purpose it should be applied in crystal or solid form, and should be given a little time to act, generally five minutes or more. I would, however, raise a cautionary signal against the penetrating and irritating power of this zinc salt, and advise that its use be restricted to cavities of not much depth, on account of the danger to pulps, from its use in cavities that approach at all near to them. I do not think this danger was ever so much recognized as it should have been.

Dr. Louis Jack, in the American Text Book of Operative Dentistry, does caution decidedly against its use in deep cavities, but suggests that it may even be used in them, if the deepest part be covered with varnish, such as red guttapercha rubbed in chloroform. I would, however, be unwilling to trust to such protection of the pulp, from the irritating properties of this agent. I think it should only be resorted to in cavities of little depth; but in these it is very useful as an obtunder.

Its penetrating power, together with its own medicinal properties, makes zinc chloride a useful caustic for treating small excrescences or tumors of the gums or mucous membrane of the mouth.

I have a number of times successfully treated with zinc chloride, epulis or similar growths—such as I judged would have been very likely to recur if removed with the knife—by repeated and persistent applications to the growth, of a crystal of this salt, long enough each time to burn somewhat into the tissue. This is only adapting an old method to the locality, for zinc chloride is one of the drugs that has long been used combined in paste made with flour, for the caustic treatment of tumors on other parts of the body.

It is referred to in chemical and other text books as very soluble in water, but I do not find it to dissolve more than about 1%, any surplus over this assumes a flocculent condition. Ten grains to the ounce of water makes a turbid, milky fluid, in which a large part of the salt is only suspended. This is about 2%, but Dr. Burchard, in the American Text Book refers to a 10% to 40% solution as if it is soluble in such proportions. His recommendation, however, that it be used to treat pulp canals from which recently devitalized or living pulps have been removed, is decidedly worthy of being followed, because of its efficient coagulation of the albuminous contents of the tubuli. Such a solution I have found to be also a valuable agent for treating chronic alveolar abscess with fistulæ, when the tissues about the root apex have become indolent, and do not readily respond to treatment with other medicaments. If forced through the pulp canal into the abscess and out through the fistula, it will often arouse the dormant reparative action of the tissues, and result in a cure when other means have failed. It frequently shows similar beneficial effects in the treatment of pyorrhea after the removal of deposits. When gums are only retracted, leaving the necks of the teeth uncovered, whether they are congested or anaemic, and polishing with pumice on the stick is indicated, the application of zinc chloride is 2% solution seems to be a decidedly beneficial adjunct to the polishing process. I have used this solution instead of water to wet the stick that is to convey the pumice powder, and found it a very advantageous way to make the application, because it is time saving, and the stimulant effects of the medicament are thus easily obtained.

I suppose there will be no dissent from the judgment that the most important element in the benefit resulting from polishing teeth at the cervix is due to the removal of adhering foreign material; next may be the stimulating effects on the gum tissue by mechanical irritation; but some continued experience during at least two years, leads me to believe that no unimportant addition to the benefits of such treatment may be obtained by the use of a supersaturated solution of the zinc salt as has been already described. I wish those to whom this suggestion appeals would test this practice and report on it in due time.

Dr. S. E. Davenport:—The tendency of the times is rather toward new laws, new methods and new remedies—not that they are always better—and I think Dr. Howe has rendered a distinct service in calling attention to the advantages of this, one of the older remedies. I well remember seeing it used in the office of my preceptor, the late Dr. J. N. Davenport, of Northampton, Mass., for two purposes—the obtunding of the dentine in shallow, sensitive cavities, and in the roots of abscessing teeth with fistulæ, which had not responded to treatment with milder remedies.

We older dentists, I think, understand the advantages possessed by zinc chloride, and appreciate them. Whether it is that the colleges do not teach as they should regarding the qualities of different drugs and medicaments, that leads the younger dentists to use the proprietary remedies, I do not know; but I believe it is true that the young men are using a greater proportion of secret nostrums than the older ones.

These secret compounds often have valuable properties; but those beneficial influences come from drugs of well-known character, which have a place in the pharmacopoeia and which should be chosen and used by men who are fitted by education to judge what medicaments are needed. In other words, it is a pity that members of a supposedly learned profession should make use of a proprietary remedy, simply because of the claims made for it in the advertisements, or by the letters of commendation which are so readily given, sometimes, by members of our craft, when the drugs of which these nostrums are compounded are so easily obtained and their influences understood.

The use which Dr. Howe has made of the solution of zinc chloride in the treatment of receding gums is new to me, and it seems to be valuable. I am very glad Dr. Howe emphasized, as he did, the danger of using zinc chloride in the crystal form in deep cavities, for I believe men who have found benefit accruing from its use in shallow cavities, have often been led to use it in deep cavities, to their sorrow.

Dr. E. A. Bogue:—I also am pleased to hear Dr. Howe bring up this subject. The material is one I have constantly used for twenty-five or thirty years, and I think he has done a favor to those who read, in emphasizing this matter of taking care of deep cavities. In shallow cavities I have used this substance very freely. I have placed it in approximal cavities in the lower incisor teeth, and left it while I went to lunch—perhaps twenty minutes.

As to destroying pulps with it, Dr. Levett told me he had once destroyed a pulp with it, but never should again, because it gave so much pain to the patient, and himself so much trouble. By using crystals of carbolic acid in any cavity which any of us here would be called upon to excavate, and following that with crystals of chloride of zinc, we will obtund the great bulk of sensitive cavities with surety and safety.

I will say one more thing as it occurs to me. Dr. Jenkins, of Dresden, says he has no fear whatever of operating on dead teeth whose roots were once filled with oxy-chloride of zinc, as they never give any trouble afterwards, considering the properties of the chloride.

The President:—Does Dr. Bogue treat sensitive teeth with crystals of carbolic acid first and crystals of chloride of zinc afterwards? I ask because I understand he used crystals of cocaine in connection with the carbolic acid.

Dr. Bogue:—I have occasionally tried cocaine, but usually do not.

The President:—In speaking of this same remedy some years ago with our friend Dr. Dawbarn, he made this remark: "It is the only one of the caustics which leaves a sterile slough." If that is true, it is worth considering carefully.

The President then introduced Dr. J. A. Waas, of Hammonton, N. J., who read a paper entitled, "The Mummification of the Dental Pulp."

(For Dr. Waas' paper see page 39.)

Dr. Ottolengui:—Having been informed that the tray of teeth with different roots shown by Dr. Waas has had but one addition since I saw them in Brooklyn, I think the lot now looks easier even, barring that one, than the last time I saw them, because we have better methods than we had then. In this connection, I would mention a broach made in Detroit—I think they are called Young's Aseptic Broaches—which have been invaluable to me and to others. They were called to my attention by Dr. Gaylord.

This proposition for the mummification of the pulp is much more important than most subjects that are presented to us, because it is a radical departure from general practice; consequently the essayist, I hope, will realize that I am discussing a subject, and not himself.

I do not agree with him. This is the third time I have heard him, and I cannot see yet that mummification has any extended use in dental practice.

Let us analyze the situation. We all have roots to take care of, and is it not better to take care of roots that come with healthy, living pulp tissue in them, than with unhealthy or putrescent contents?

The essayist admits this method does not cover that difficult class, consequently one must acquire the technique to so thoroughly fill the roots of putrescent teeth that they will become aseptic and remain so.

There is no difference, anatomically, between those teeth in which pulps die before the case presents itself, and those teeth where it is necessary to destroy the pulp, and as we are expected to successfully treat teeth having putrescent pulps, the same method will take care of the teeth with living pulps. It would seem to be much better to practice that method in all cases, than to have one method for one class, and one for another. The more often these inaccessible (?) cases are taken care of the more quickly will they become accessible to the experienced touch.

If the Institute is really interested in this subject, it might follow this paper with one from a gentleman who has made a special effort to fill root canals and to keep them aseptic. If Dr. Rhein should be invited to come and give his technique, it would be a treat, because for several years he has been taking radiographs of all of his more difficult cases, and after filling the root canals, has again made radiographs of them in order to determine whether or not he had filled them. He has lantern slides of these cases, so it would be easy for him to bring a full description of the technique and the proof that root canals such as are on that tray can be filled.

The essayist mentioned the use of Glycerol in his paper. We published his last paper, and we constantly received letters from people that their druggists did not know what Glycerol is. I have sent them to Dr. Waas. If the druggist does not know what Glycerol is, it would be better to publish the name by which it is known.

I am obliged to discuss the paper from his records; I have none. The Doctor has admitted in the first place he does not treat those cases in which the pulp is already dead, I presume because he cannot mummify something that is putrescent. Consequently he says even in those he does devitalize, he does not always use the mummification—that it is only in those cases where he anticipates or experiences difficulty in getting out all the pulp. So you see how very limited the practice is, even in the author's own experience. He gives us a record of 350 cases in twelve years. That is something less than thirty a year, and thirty inaccessible cavities a year is considerably more than I meet.

Another point to which I take exception is in regard to his statement that if mummies can be mummified and kept from putrefying for three or four thousand years, more or less, why is not the same thing possible in the root of a tooth? The difference is, the mummy in the tooth root is enclosed in a wrapping which is vital—which is part of and in connection with the human body; it is not isolated in a tomb.

For example, I have seen very beautiful razor strops made out of tanned human hide; but I doubt the possibility of tanning the human hide on the human body. Well, of course we can tan *young* hides, but not sufficiently to sharpen razors.

Here is another difference—all those mummies are completely encased and wrapped; but these mummies in tooth roots are only treated at one end. It is tissue that has just been devitalized, and yet we are told the medicament enters into and mummifies that tissue so recently dead. So the essayist has not really proven that he has mummified pulps at all. He has simply proven this—that in certain cases—some 350—he has taken out parts of the pulp and put some medicine in, leaving the rest of the pulp in there, and that those teeth have not given any trouble. There is not a scintilla of evidence of mummification. I do not say there is no mummification, but that the essayist has not proved that there is.

It does not follow that a pulp is mummified because it has not given trouble. I received the full force of a brickbat once on the end of one of my incisors. It was perfectly comfortable for eighteen years, but then very uncomfortable for two years. Eighteen years was a long time for it to give no trouble, and twelve years is a long time for these teeth to give no trouble; but a great many pulps left in teeth give no trouble even if they are not mummified—if they are so attenuated and so small they are less likely to give trouble.

Dr. E. A. Bogue:—Dr. Waas uses mummification for such portions of the dental pulp as cannot readily be removed.

I understand his contention therefore to be, that we should all mummify what we cannot remove.

Dr. Amos Wescott many years ago found that arsenic put into a tooth for the purpose of devitalization, and by accident or neglect left without attention a year or more was effectual in preventing putrefaction.

Dr. J. Foster Flagg found the same thing.

Taxidermists have long used arsenic for the double purpose of preventing decay and warding off the attack of moths.

Dr. Magitot used arsenic to allay sensitiveness; the destruction of the pulp generally followed, but there was not enough arsenic present in pulps destroyed without exposure to prevent eventual decomposition.

So after two or three years abscesses frequently followed that sort of devitalization.

Glycerine has been used for keeping fish fresh for two years. Instance detailed in Odonto Trans., Dec., 1875.

I have seen mummies of several years' standing at the Hospice of St. Bernard for whose mummification nothing but the cold, dry air of that locality had been used.

Other mummies have been found in Peru seemingly as dried up as those of Egypt, and I have had a bit of mutton chop in my office for three or four years; but it would be hazardous to say that this mutton chop, or these mummies would not undergo decomposition if placed in the warm, moist atmosphere of the mouth.

Dr. Waas says that every dentist who has been in practice a number of years, knows that there is a class of roots, especially in molar teeth, from which the pulps, even after devitalization, cannot be removed, and the canals filled, even by the most expert operator.

In this he is quite correct.

If he means to inculcate greater care in the effort to mummify all portions of pulps that cannot be removed, I think we all owe him our thanks, and should follow his suggestion. I would ask if formaldehyde could not be used in connection with glycerole of thymol to more completely harden and preserve the tissue.

If Dr. Waas means to offer devitalization and mummification of the dental pulp, in place of extraction, for pulp exposure in hospital practice, I am heartily in accord with his views and shall regard their adoption as a distinct advance in conservative dentistry for the poor. But if he means to advocate leaving the pulp in any of the six front teeth, after devitalization, and trusting to mummification, to protect us against discoloration, and possible abscess, I should regard the case as not proven.

On December 20th, 1875, Mr. C. Spence Bates sent a paper to the New York Odontological Society on the "Antiseptic Treatment of the Dental Pulp and Pulp Cavity." In it he says: "The plan that I propose is the use of antiseptics for the purpose of precluding decomposition of that part of the dead pulp which is unavoidably left in the tooth." He details a number of cases where glycerine, having been injected into the pulp cavity of devitalized teeth, many of these painful, they have become comfortable and remained so several years. This treatment was in most of the cases, repeated several times and seems in Mr. Bates' hands to have been effective even in cases where pus was discharging. In the removal of the dental pulp he worked through glycerine, thus excluding the air.

The basis of the theory of antiseptic treatment rests on the exclusion of air during operation within the pulp cavity, the preservation of the dental pulp when healthy and the prevention of its decomposition when diseased.

Six years' experience produced in Mr. Bates' hands results more favorable to the preservation of the teeth with diseased pulps than any other treatment that he knew.

Glyco-formaline is stated to contain 30% of formaldehyde gas, 10% of glycerine and 60% of water, the glycerine acting as a preservative. (This is through the courtesy of E. R. Squibb & Sons.)

Dr. H. L. Wheeler:—I have been much interested in this paper, and I practically agree with both of the gentlemen who have discussed it previously. Dr. Ottolengui reminds me of a certain story.

There was an accident on a railway crossing, where there was a colored flagman. The people were hurt, and there was a lawsuit about it, and the colored flagman had to testify. He was warned by the attorney that he must tell the truth, and not get mixed up by the opposing attorney. He testified that he was there, and that he swung the lantern, but the people paid no attention to it, but went on and they were injured. When the case was over, the railroad's attorney congratulated him and said he was a fine witness. "Yas, suh," he said, "but I was frightened every minute they would ask me if the lantern was lighted!"

I think Dr. Ottolengui's lantern was not lighted. I agree with his statements, but they do not meet the case Dr. Waas has brought before us.

I can go back twenty-three years or more, when I was a small, freckle-faced country boy, and went to Dr. Waas to have my teeth filled. Some of the fillings he put in then are there yet.

I know the country around there very well. It is largely a fruit farming country—small fruit, such as berries; and they are short of cash, usually, and have to consider the amount of the bill. In cases of that kind, I feel sure the treatment Dr. Waas has recommended to-night is a valuable adjunct. I feel very sure many of these people have teeth in their heads doing good and valuable service to-day, that would not be there if it were not for this treatment Dr. Waas has given them.

Even granting that they could have been saved as well by carefully going into the canals and filling them, as we do here, the time required would be so much greater, and the expense so much more, that they could not afford it.

I do not think that practice would be good for Dr. Ottolengui, or Dr. Bogue, or myself, or perhaps any of us here. I doubt if we would use it thirty times a year. I suppose Dr. Waas himself uses it as a last resort. He knows the environment and the necessities of the case, and I quite agree with him that if he has done nothing else in the profession, he has conferred a great good on the community in which he lives, by the intelligent use of this mummifying process.

For hospital practice, as Dr. Bogue said, it is a valuable thing. I have in mind the clinic in which we are interested, on the West Side, cases where a treatment of this kind, used with judgment, might prove of great value.

I am not so sure but what the much-advertised Oxypara is so different from Dr. Waas' preparation, except it probably has creosote and formaldehyde mixed with it. I think if Dr. Waas would add formaldehyde to his mixture, it would not detract from its mummifying qualities.

I would like to ask Dr. Waas about the tooth marked "X" in this tray of mummified pulps—how the paste happened to be used in that case where the pulp is readily approached.

Dr. Gillett:—Mummification of pulps seems to be an excellent thing for just the two places that have been cited—infirmary practice, and practice where the clientele is such that it is essential to do the least possible amount of work and still retain the teeth. That seems to me the limit of its usefulness.

The citation of cases reminds me very much of papers we used to hear advocating cotton root fillings. We know why that has been given up by most practitioners. Cotton proved a good root filling in those canals which needed no filling, and it seems to me mummification of pulps will be satisfactory in those roots which will take care of themselves perfectly well if nothing is done—in the roots where the foramina are exceedingly minute.

I should be very apprehensive of the results (regardless of the number of cases cited by the essayist) of a general effort at mummifying pulps in canals where the foramina are of sufficient size and the conditions such that there is opportunity for the collection of fluids in the canal. I fail to see on examination of the specimens, and I fail to note in any portion of the essay, anything that would give me confidence that this process succeeded in occluding foramina of any size.

The President:—As Dr. Ottolengui said in opening the discussion, it is a departure from a recognized rule of practice, and Dr. Waas, having brought this before us clearly and honestly, it is worthy of an expression of our views in the matter.

Dr. Ottolengui:—I probably know more than any one else here of the impression Dr. Waas' papers have made on dental readers. It is quite different to present it to an audience like this, and to present it in print, where men of all sorts of mental calibre read it. Unless the limitation of the use of this mummification be made clear, a great number of men will think it is a scientific method, which enables them to put arsenic in a tooth at one sitting and the mummifying process at the second. That is the principal danger of putting this into the hands of men who would not be as discriminating as the essayist.

Dr. Maynard:—I have had no personal experience in mummifying pulps, but I remember a number of years ago when this was first presented to the New Jersey society, and how for a year or two after that, many took it up and thought they had an easy way of treating teeth. It was my fortune to have a family move to Englewood who had been in the hands of someone who had taken it up in that way, and in all my practice of twenty-two years, during which time I have taken out a good many dead pulps, I never came across anything with which I had harder work to make the teeth comfortable, than those cases.

When it was first brought before the New Jersey society, I said it was opposed to all principles of surgery, and I have not changed my mind.

There are perhaps many cases, where, if properly done, it is a good thing, but I believe in those cases better results can be obtained by other means. One should be very careful about presenting a method of this kind on account of the younger men who read the reports of these cases, for it leads to careless work, when, as we all know, there is nothing that requires such care in every little detail as this.

Dr. Waas:—The last speaker said the danger of advocating a treatment like this, is to the younger members of the profession. Every treatment can be abused—it does not matter whether it is pulp mummification or anything else—the younger and the older members, too, can abuse it.

Dr. Wheeler wanted to know what that tooth marked "X" was extracted for, it being a single-rooted tooth, and comparatively easy to treat. I mummified it in the mouth, and while doing so, I said to the patient, who was not in very good circumstances, "How much value do you put on this tooth, and allow me to extract it?" She said "Ten dollars," and I gave it to her, got a receipt, and extracted the tooth. That is how I came in possession of this tooth, which was mummified in the mouth.

In the "Cosmos," in 1892, Dr. Ottolengui said that "the majority of teeth in the mouth deviate from a straight line when they get near the ends of the roots."

Dr. Ottolengui:—I have never claimed that I have made no mistakes in my life. I have learned a great deal since 1902. Besides, that was written concerning the custom so common then, of enlarging pulp canals with burs and drills.

Dr. Waas:—He claims that 90% of the roots of teeth deviate from a straight line. If that is so, what does he do with the part of the pulp at the end of the root, which he cannot remove?

Dr. Ottolengui:—I have instruments with which I can take them out, even if at a right angle.

Dr. Waas:—How does Dr. Ottolengui know he has filled the roots of such teeth?

Dr. Ottolengui:—By taking an X ray picture of them afterwards. Dr. Rhein can show many such pictures.

Dr. Waas:—Dr. Magee, of Pittsburgh, claimed some years ago that he could fill every root to the end of the canal after removing the pulp. This was a challenge with another dentist. He filled some roots, X ray pictures were tagen, and I think out of ten teeth there were three that were filled to the ends of the roots. The other seven showed that the roots were not filled by any means.

Dr. Ottolengui also says that the pulp is not mummified until after death. I say I never mummify a pulp that comes to me dead. I must devitalize it with arsenic. I must know it is in a comparatively healthy condition before I devitalize it. I would not mummify it if there were any disease of the pulp, or where the layer of dentine is too thin to cap it.

Criticism is really of no avail, if one cannot offer a substitute. Dr. Ottolengui himself has said that "Critics are usually people who are not able to do things which they set themselves up to criticise." This was written in 1907. It has been said tonight that my method is only good for poor people. I have never lost a tooth and yet I would not hesitate a moment to have one of my molars mummified, because I know the results of this treatment to be all right. If twelve years is not long enough to test a treatment, how many years are necessary to prove that a method is successful?

Dr. Ottolengui:—If there is a method by which Dr. Waas can take care of the roots, whether crooked or not, where the pulps are putrescent, why can he not take care of them when healthy, by the same method?

Dr. Wass:—Because I cannot remove the pulps of *all* teeth that come to me and I doubt whether any one else can. We might be able to get out the putrescent pulps by the sodium dioxide treatment, but I doubt whether the very crooked roots of teeth can be properly filled.

Dr. Ottolengui:—The same preparation will take out a devitalized pulp just as quickly.

Dr. Waas:—I differ with Dr. Ottolengui, as I have tried it.

I see the sentiment is greatly against the treatment, and has always been, from the first time I advocated it. I was asked at several places to present it, the same as to-night; I never pushed myself forward. I think I have a good thing, and I am sorry some of the other gentlemen do not think so.

The President:—We have nothing but respect for Dr. Waas. We like to see a man come before us with the courage of his convictions. We treat him with respect and courtesy, because he has come to us as an honest man, telling us what he believes to be a truth, from his point of view.

Dr. Bogue:—In those cases where we cannot remove, I think, and I believe I repeat the thought of every man in this room, Dr. Waas will mummify rather than leave the root uncared for. He will take out, if he can; and mummify what he cannot remove.

Dr. Waas:—Dr. Bogue suggests the teaching of this treatment in colleges to students. I would positively not suggest anything of the kind. It would be the very worst treatment in the hands of students. It takes a man of experience to know how to use such a radical treatment as this. I would not use it in the six front teeth, as the pulp is so easily removed, as a rule, that it is not necessary to use it there. It is only for the pulps that we cannot remove. Going through my list, few bicuspids were treated, except perhaps an occasional first bicuspid where I could not get my flexible broach into the canals.

Dr. Ottolengui:—I want to call Dr. Waas' attention to the fact that he is entirely illogical when he limits the use of this method. If there is such a thing as the mummification of a pulp, so that it will perfectly and sterilly fill the root and become a natural filler of the root, it should be used in every root. Whenever Dr. Waas can prove positively that that is the proper treatment, he must come out flatly and say: "I do it in all teeth" and not in a limited number.

A man must only be accused of saying a thing in connection with the time in which he says it. In 1892 it was common practice to ream out canals with the Gates-Glidden drills, and I believe what the doctor quoted from my writings, was rather an argument against drilling out canals than taking out pulp. At that time, I had a conviction that men who claimed to fill all root canals were braggarts, and could not do it.

At the World's Columbian Congress, Schrier introduced the sodium potassium method, and since then we have had fine broaches without barbs which would carry this medicine.

I have seen canals which were almost invisible at first opened up by the use of these small fine broaches and carrying there the medicine; and anywhere the broach can go, the root filling can be carried because it is inserted in plastic form, and followed with a cone which will carry the filling forward.

Dr. Bogue:—When arsenic is used, it should not be taken out the next day, and the pulp taken out, but the caustic should be left to do its work from twelve to fourteen days. The pulp should then be taken out, using formaldehyde, tannin, glycerin or other hardening things; and the separation between dead and living will then take place so it can be removed.

The President:—Dr. Waas knew this was an unpopular subject. He did not come here at his own suggestion at all but at our request. We are very much obliged to him for bringing this topic before us in this way, and making such a clear showing of his practice and the result of it. We thank him most sincerely for his interesting and valuable paper.

Adjournment.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held Tuesday evening, February 4th, 1908, at the Academy of Medicine, No. 17 West 43rd Street, New York City.

The President, Dr. Chas. O. Kimball, occupied the chair, and called the meeting to order.

The Secretary read the minutes of the last meeting, which were approved.

Dr. Leo Green—I recently saw a case of stomatitis which seemed to be mercurial, but without evidence of the drug having been taken by the patient. No cause could be found for it, until we discovered that the patient was using a scalp ointment which was analyzed and found to contain four-tenths of one per cent of mercury. I thought I would speak of this, in case others should find such in their practice.

The President—I have the pleasure of introducing Dr. William H. Potter, of Boston, who will address us on "The Teeth of Public School Children—How can they be improved?"

(For Dr. Potter's paper see page 46.)

The President—We have all enjoyed this most interesting and instructive paper from Dr. Potter. I will ask Dr. W. D. Tracy, Chief of Clinic of the Dental Department of the New York Throat, Nose and Lung Hospital, to open the discussion.

Dr. Tracy—I had hoped to see a copy of Dr. Potter's paper, but after hearing the paper, I feel more inspired by the facts given by Dr. Potter in his earnest manner than I would have been by perusing a copy of the paper.

I consider that this work is a milestone on the advance road of dentistry. It shows an awakening not only on the part of the dentists as a profession, but on the part of the people; and on reflection it seems to me the people get about what they want, when it comes right down to it. We get good government or bad government according to our actual desire. Here in New York we get Tammany rule, which, to say the least, is not akin to good government and in Brookline, Mass., they get practically perfect government. We are arriving at a point where we realize that dentistry means a great deal to civilization. Intelligent parents appreciate what it means to their children, and less intelligent parents know it means less trouble and pain and expense, and have recourse to the dentist for that reason, if for no other. When one considers what good dental work actually means for the growing child, the importance of the movement is apparent.

Dr. Potter said that in Germany the state feels it cannot afford to let the child grow up without proper masticating organs, knowing that a child who is poorly nourished cannot have a properly developed brain. If the body is not nourished, and the brain not developed, that child will not grow to be a healthy and valuable citizen. In this way the work appeals to me in its greatest importance. It is a great step forward, and Dr. Potter is to be congratulated on being in the advance guard. The masterly way in which he has taken hold of it is not only a source of gratification to him, but to us all as a profession. It gives us new and valuable ideas, and by his experience we will be helped.

Personally I have taken a small active interest in clinical work, and while our clinic is young, as most of the free dental clinics are, I am impressed with the benefits the people are getting,—not only the children, but also the adults who apply to us.

The details we have heard cannot help but impress us with the importance of the idea, and after hearing such a paper, I should think every gentleman present would be impressed with his personal obligation to his fellow men and to his profession. We can no longer sit back and say this thing has never been done, and for that reason we do not think it is necessary. Every man should do something in this great work.

I am glad to go on record at this time as being heartily in sympathy with the work, and as being one who has taken a small active part in it.

Dr. H. L. Wheeler—I am very glad to hear from Dr. Potter about his work in Brookline. It is apparent that where he lives, the support of the public authorities has been secured, which thus far has been impossible in New York. Such clinics as we have here, and the work that has been done in regard to the welfare of the mouth and teeth of the children of the poor and needy, are due to the efforts of those who have offered their services entirely through altruistic motives. While there are a number of men here who like Dr. Tracy, have tendered their services, I feel that the work in the vicinity of Boston is receiving a much greater impetus and will prove of much greater immediate value to the community than ours, although I hope ours will, eventually, also prove valuable.

I do not know whether all present know that there is a clinic supported entirely from the funds given by the Children's Aid Society, one of our chief charitable organizations. My first interest in the care of the teeth of the poor came about when Dr. Howe was the chief of that department in St. Bartholomew's Clinic. Later on, having been appointed on a committee that has to do with the physical welfare of children in New York City, through the interest of Mr. Allen, and through the good will of Mr. Brace, of the Children's Aid Society, we succeeded in getting a room and purchased a chair. Dr. Louis Nash donated one chair, and Dr. Dunning another, so we now have three chairs, and a corps of assistants.

Some of the older members of the profession, who have arrived at an age when it would hardly be fair to ask them to give their time, are put on a board of consulting dentists and there is a board of visiting dentists who operate half a day each month. That of necessity comprises twenty-five or thirty dentists.

There is also a board of younger men, who have not yet acquired a practice, and are not so closely confined as the older members, who give half a day each week to the work. That gives the advantage of a younger man always being in consultation with an older one, in case anything puzzling comes up.

The intention is to give to the younger men who serve fathfully for a designated time, a certificate somewhat similar to that which hospitals give to internes and resident physicians and surgeons.

That work has been going on for nearly a year, and a great deal of good has been done. In the ten months to the first of January out of which three or four months in the summer the clinic was closed,—555 patients were examined. As the school has an attendance of about 500 we have in ten months gone over about the whole number of children who are expected to be there during the school year. In the teeth of the 555 examined, there were found 2362 cavities that needed filling (counting both the permanent and deciduous teeth). That would be an average of four or five to each child. The examinations have not been hurried; in fact, sometimes in an afternoon there are not more than from six to ten examined by both dentists, a great deal of work being done right there, as these children are so poor they could not possibly go to a dentist, no matter how small his fees were.

The number of teeth extracted, permanent and deciduous, was 447. The number of fillings, amalgam, cement and gutta percha, has reached 284. I have been there occasionally and examined the work, and it has been of a high order, and very satisfactory. There have been treated also for diseased pulps and similar conditions, about 200 teeth. These are permanent teeth, largely first molars.

I have talked to Dr. William Carr, who has been of great service in this work, and he informs me that students from the dental colleges could not do work, except under the supervision of their demonstrators. I suggested to him it might be desirable for senior students of the colleges, if possible, to come there and clean the teeth, not doing any filling, but looking on as much as they could. I think this can be arranged by having the demonstrators put upon the board of visiting dentists, and havng them there certain days in the week, with the students. It would give more opportunity to do the cleansing which is so necessary.

The splendid effort being made in Brookline to teach the children how to care for the teeth has not been done in such a systematic way here, but more attention should be paid to it in the future.

While the work is of very great importance and usefulness to these people, the clinic itself has a broader and deeper meaning to me. There is no doubt but what dentistry as a whole has been so absorbed in repairing the teeth presented, plugging cavities and making artificial dentures and bridgework, that the question of prevention has received but little attention, and the public is only now beginning to wake up to the value of the teeth as factors in their nourishment and health. They will in the future make much greater demands on the profession than in the past, and will ask us to give an account of our stewardship, and what we have done to prevent the necessity for such work.

Such institutions as Dr. Tracy and I have spoken of, while only beginning, do give us an opportunity to do a certain amount of experimenting, and to make attempts through hygienic teaching, and possibly through medicinal treatment of the teeth—for instance, the application of nitrate of silver—to prevent these serious inroads of caries which are so inimical to the welfare of these children. Most of them are not able to employ dentists who work for even the smallest fee. A very casual examination of the teeth on the East Side in Manhattan, and the Bronx, of the school children made by the committee for the physical welfare of children, showed that over 75 per cent were in need of dental services.

When we consider that there are several hundred thousand pupils in the public schools of New York City we can imagine the task before us.

Another thing has occurred to me: We have a very serious blot upon our good name in the number of advertising dental offices. Many people find our usual fees so high—not too much in my estimation, because I believe the average dentist gets less than he is entitled to for the energy and work he expends; but many people cannot afford to pay our fees, and it seems to me they are sometimes justified in going to the advertising offices.

Many of the young men who graduate from college find themselves with their money spent; they have an education and a diploma, but no immediate means to exist while they are trying to establish a practice; and the only way open to many of them, whose intentions are the best and who would like to practice in a reputable way, is to take positions in these disreputable advertising places at a fixed salary.

Now if the dentists could persuade the public authorities to become interested the dentists themselves could establish a large number of these clinics where the needy poor can have their teeth attended to either for nothing, or for such amounts as they can afford to pay. There should be appointed men to examine the mouth and teeth in the public schools, and to pass upon them as the physician passes upon the general health or the specialist upon the nose, throat, eyes or ears. If the dental profession, by giving their occasional services, and by persuading their friends to give the necessary funds, can establish institutions where we could take one or two men, who will attend regularly, choosing them from those who are desirous of establishing a practice, and pay them enough to assist in tiding over the time of need,—if positions are open under the Board of Health or Board of Education for young men to assist in this work at a small salary, it would help many of them very much, and keep them out of these advertising offices that we all dislike so much. Those who know anything about it know that the young men who get into those offices are not allowed to build up a practice; those in charge see that the patients are not sent to the same ones often enough to enable the dentist to get any hold on them.

Those are important things, not only for the welfare of the community but for the general uplifting of the morals and ethics of the profession. We should sacrifice a great deal to carry on this work, which is so ably carried out in Boston, and which I trust will take root and grow here.

I have with me a letter from Mr. Brace, of the Children's Aid Society. I wrote to him asking what the cost of the clinic had been to the present time, thinking if any of the gentlemen had considered the question of establishing clinics of this kind, if might be of value to them.

Children's Aid Society.

New York, Jan. 29, 1908.

Dr. Herbert L. Wheeler,

Dear Sir: In response to your request for information as to the expenses of the Dental Clinic up to the first of January, I beg to report as follows:

There was expended for wages......	$125.00
Repairs	14.88
Printing and Stationery	72.17
Insurance	20.00
Equipment	239.00
Incidentals	33.34
Total	$504.39

The splendid work accomplished by the Dental Clinic has been widely advertised and your report is part of our general annual report. Nevertheless the contributions toward the support of this clinic have been but ten dollars, which indicates a lack of interest in the community quite surprising. The explanation probably is that the public has not realized that the clinic is a charitable effort and sustained by gifts.

May I suggest therefore that in your report you make this clear. It is quite true that the gentlemen who are giving their time, services or advice to the clinic are doing their full share, but it might be suggested to the dentists in general, outside of your list of helpers, and to their patients, that they also should help maintain this clinic so necessary to the welfare of the poor.

Yours very truly,

C. S. BRACE,

Secretary.

I am not surprised, as Mr. Brace is, that the clinic has not received more support, for the reason that it is so new. People are very conservative in matters of charity especially, and until we succeed as a profession in convincing them that we are taking up this matter in the proper way, I do not anticipate a great deal of support from the general public; but as time goes on, we will find a very generous and hearty support from this same public if we are persistent in our good work.

Dr. J. J. Cronin—There are some points which I look at differently perhaps than dentists do. The question is—are we beginning at the right end? Shall we begin with the children to educate the public? There are over 2,000 dentists in this city, and you have perhaps 200 memberships in this Institute. Why it is that the members of this profession have not the proper spirit to ally themselves with an Institute of this kind, is almost beyond human comprehension. Certainly they will be made better dentists by being associated here, if the tenor of the papers at the last two or three meetings is kept up.

We are meeting difficulties which it is almost impossible for us to overcome in our attempt to educate the people. I believe we must educate the members of the profession first. There is no use depending upon parents, because a large majority of them do not know the importance. Many do not know the use of a waxed thread, and the entire amount of necessary oral hygiene in the minds of most people is a scrubbing of the teeth once a day. They think any further washing or scrubbing is apt to destroy the enamel, and therefore should not be done.

A little Italian boy, recommended by the Board of Health to go to a dentist for treatment was returned to us with the message from the dentist that he does not want to be bothered by the Board of Health sending patients to him.

Another child was sent to a dentist with several temporary teeth with cavities. The dentist recommends "to leave them as they are as it is only a few months time when they will come out and permanent ones take their place."

The Department of Health is doing excellent work in sending children to the dentist, and this is the amount of co-operation we get from some members of the profession.

How shall we educate not only dentists, but physicians? How are we to preserve our own integrity and honor and self respect in a profession?

I have thought the matter over pretty seriously, and I believe it is necessary for the government to take care of its children. When we find that 30 per cent. of the parents or guardians are irresponsible, and have not the slightest idea of bringing up a family—when we find that parents actually object to children being educated beyond the scope of their own education, for fear the children may criticise the parents—it is time for governmental interference, not only in behalf of the children, but in behalf of the general community.

I believe the time will soon come, when societies of this character will formulate rules and regulations, asking the government to have an annual examination of every practising physician and dentist, compelling them by law to study and become qualified to practise their profession with the ordinary skill, diligence and care that we hope at least they had when they started.

We find that over 60 per cent. of the children in the public schools of the City of New York have bad teeth, and we are not any more exact than we should be. I believe the average of bad teeth among those children would come nearer to 95 per cent. the same as with adenoids and enlarged tonsils. When I am asked if I ever do find a healthy child, I answer in all seriousness "no" and I would be correct 95 per cent. of the time.

We have been trying to push the work so we could claim recognition from the Board of Estimate and Apportionment and demand more money for the work. There is nothing to compare with the work of the Department of Health, and yet we are not doing one-tenth of the amount of work we should, because we cannot follow up the cases. It seems almost a crime for anyone to interfere with the performance of this work.

We are now compelled at the end of each term to reinspect the defective children, and find out to what extent the suggestions and advice have been carried out. When we come to think that about one-third of these children move every month or so, we realize the discrepancy that must result in the reports. Out of the 59,529 first examined we re-inspected 46,089. A large number of those received treatment simply by advice of an ordinary postal card sent the parents which is most comforting to those who have a lugubrious idea of what parents will do. For malnutrition, we found only 478. We hear much about bad nutrition, but we found all these children are pretty well fed.

Much is heard about schools being the breeding places for tuberculosis, but we found only 88 children with pulmonary diseases.

The number who have had their teeth actually attended to, extracted or filled, was 4405. They were also examined for hypertrophied tonsils, adenoids, and as to their mentality.

I hardly know what to say regarding the little clinic at 552 West 53rd Street. I do not believe in clinics generally unless they are connected as is that one with a school where the teachers know whether the child is worthy of treatment. I believe the medical and dental professions should come together and adopt the old system of preceptorship, each good dentist having some young men working under him, so at the end of the day the young man will have learned something.

The same is true with the medical men. THe only reason people go to the dispensary is because they believe they get a higher class of service. The officers will have no one working there, for the honor of the institution, whom they cannot endorse, and who cannot do good work.

I do not see why all dentists and physicians should not try to uplift their professions by having the government annually catechise and examine all who are allowed to practice in this state.

Annual examinations would improve the tenor and tone of the two professions.

Dr. Hyatt—We have all listened with much interest to the paper by Dr. Potter and also to the remarks of the gentlemen who discussed it. Those who know me well can best appreciate my feelings when I attend a dental meeting and find men advocating the education of the public.

I notice the title of the paper referred to what can be done to have better teeth. I have a very positive idea in regard to that, and will give it for what it is worth. It has been my surprise and delight to find that children can be very easily entertained by an illustrated lecture. During the past five years I have lectured before the Juvenile Department of the Young Men's Christian Association, giving an illustrated lecture called "Jumbo's Tooth and Other Teeth," and the halls are always crowded. There were from 60 to 100 children, and their ages ranged from eight to thirteen years. I have talked to them about an hour and have not had any disturbance—no getting up, or dropping marbles, or talking, as I understand they do sometimes when other subjects are presented. I have received letters from different sources, telling me the children have bought tooth brushes, and have asked a lot of questions about their teeth. I believe a large part of our work should be to prove to the Board of Education of the City of New York, the importance of giving lectures on this subject in each public school in this city. We should have at least one illustrated lecture every year in every public school.

This tooth brush brigade I think is a grand idea, and a great deal might be done with it. As has been said, the people are ready. Who are they to look to, but to us? Our moral obligation to-day is greater than it ever has been in the past. We not only know more in the science of dentistry, but the opportunity to do more is greater than it ever has been before. There comes in the human side, and every one of us should step forward to help the movement.

Dr. Leo Green—With five or six years' experience in institution work, I have come to the conclusion that the solution of this problem is compulsory attention to children's teeth. I do not believe lectures accomplish much. We must either have the city government take care of the children in the schools directly, or have the various institutions, such as orphan and foundling asylums take care of them.

Lectures and tooth brush brigades arouse temporary interest, but we require more than that. Voluntary treatment is one thing, and compulsory treatment is another; and with compulsory treatment the best results would, in my opinion, be secured.

Dr. Tracy—In reply to Dr. Green I would say men may need driving sometimes, but we can lead children. I get better and more continued co-operation by leading the children and interesting them, than I could by standing over them with a club.

Dr. Green's work is largely confined to institutions, I judge. In institutions compulsory measures might be successfully used but in working among the public school children, as Dr. Cronin does, it is impossible to resort to compulsory work, and we deal largely with the public school children. We have had many sent to our clinic from the schools and I do not find that the children shirk their appointments. We explain to them the advantages of having the work done, after we have relieved their pain, and we have very few broken appointments.

We are all impressed with the importance of Dr. Cronin's work, but I take exception to the idea he advances about the annual examination of the dentist and medical men. I fail to see the necessity of it. We have as many quacks in the dental profession as there are in the medical profession, but their license could not be taken away from them, nor would that annual examination make better men of them.

He says he does not believe in the general clinics, because imposters always creep in. In the New York Throat Nose and Lung Hospital, we try to protect ourselves. The registrar of the hospital interviews applicants and if it leaves him in doubt, he sends a visiting nurse to investigate, and we not treat people who can afford to pay.

To the credit of the young men who have helped in the work, let me say that they have not been quitters. They have kept their appointments, and we have accomplished good work. We have not bothered much with statistics, but we have kept right at the work.

Dr. Wheeler—The Board of Child Labor in New York State is now in some of its districts in the state requiring every child who applies for permission to leave school and begin work, after having reached the legal age, to undergo a physical examination. They must be free from adenoids and nose and throat troubles, and must have good teeth, and they are refusing to give them certificates. which will prevent men or companies or corporations from giving them employment, until they are free from those defects. That seems to be working very well in those places where it has been tried.

Dr. Potter—As to compulsory work, the teeth will not stay in good condition unless the child is interested in the ordinary processes of self preservation. We cannot forcibly clean a child's teeth three times a day, or even once a day. That is where education seems to come in and be of the utmost importance. Teeth that are put in order one year will be in disorder the next year, unless taken care of. I do not see how the voluntary part of this subject can be omitted.

The President—At dinner, Dr. Potter spoke of the remarks of President Eliot of Harvard, in reference to an appropriation of $80,000 which the Harvard Corporation has made to the Harvard Dental School to put with their own money and enable them to start their new building in connection with the great medical work of Harvard University. The remarks President Eliot made were so strong that I would like Dr. Potter to tell all present about them.

Dr. Potter—I could not help speaking of this matter to Dr. Kimball, because the meeting at which these remarks were made seemed to be one of the most notable I ever attended. It occurred on December 23rd, and was one of the regular meetings of the Faculty of Medicine of Harvard University. The question for consideration was in regard to a special appropriation of money for the purposes of the dental school, and it lay largely, although not wholly, with the action of the Faculty of Medicine, which controls the medical and the dental school, whether this appropriation should be made.

President Eliot, in urging the appropriation, spoke of the value of the dental profession in the community. He spoke of how the University regarded the dental school. He said that the success or failure of the dental school affected the prestige of the University. He said also that the dental profession was being relied upon more and more to assist in maintaining a hygienic condition of the community. We dentists realize the truth of that statement but when it is publicly announced by one of our foremost educators, it is very significant. Our profession is advancing; we are called upon to do higher and better things than ever before. Dr. Jessen, of Strassburg, in his large book, written about a year ago, upon the care of the teeth of children in the public schools and in the army, says in his preface that it is time now for the dentist to leave the work to which he has been devoted to,—namely the repairing of defective teeth, and come out of his office and take a hand in the care of the general health of the community.

It was this idea among others which President Eliot brought out at the meeting referred to.

The President—I would like to ask the attention of the members for a few minutes to our friend, Dr. John Marshall, of the United States Army, who is with us.

Dr. Marshall—Dr. Potter's paper is along some of the lines I have been interested in in the Army. I have found in my work in the United States Army that the enlisted man who is supposed to be physically perfect when he is taken into the Army has as bad teeth as are found among the children in the public schools. In fact, he has worse teeth. Many of them lost their first permanent molars before they came into the service. Formerly the rule that made a man acceptable to the service, was that he should have two opposing molors on each side of his mouth. Now see what that means. His food is good and wholesome, but he requires good teeth to masticate it thoroughly, and the result is many of them are not in the service more than a few months before they are on the sick list, and are found to be suffering from gastritis and enteritis.

Some three years ago, I wrote a personal letter to the Surgeon-General, and told him greater care should be exercised in the examination of the men. Many times where there were two opposing molars on each side, the pulps would die, the teeth abscess, and the man was not in the service long before he lost one tooth. I suggested that they have four on each side, and that has been accepted, so we have made a little advance.

The condition of the teeth and gums of the men coming home from the Phillipine Islands show they require great attention. I have had them examined critically by my assistants after they had been there three years, and we found in one regiment over 87 per cent of the men needed dental treatment, and in another regiment 93 per cent. I believe that holds good all through the Army.

They are not of course college graduates, but come from the lower walks of life. Their parents perhaps knew nothing about the care of the teeth, and perhaps have not been even taught the use of the brush. I have them come into the office, put them in the chair, and find the teeth covered with filth. I say: "Have you not a tooth brush?" "No, sir." "Can't you buy one?" "Yes, sir." "Then why don't you?" "I didn't know it was necessary, sir." I say "well, I will excuse you this morning. You go to the Commissary-General and buy one, and two days hence you come to me again."

We are educating them. I had hung up in my office at the Presidio, all around, signs that read "Clean teeth do not decay." It had a wonderful effect on those men, especially those stationed there for any length of time. Those men who come six months or a year apart for treatment—when they come into the office, I find their mouths clean and neat. I say: "You are keeping your teeth nice and clean" and they say "Yes, sir; I noticed what you said, and I don't like toothache, and I have been cleaning my teeth."

I read that an examination was made of the school children of Hanover, Germany. Ninety-three per cent of the male children had defective teeth, and 95 per cent of the females. That is pretty bad, and the German government is taking it up, and is establishing clinics where the children are obliged to go. In the German army, the head surgeon, or top surgeon as he is called, is made responsible for the men of his company, to see that they brush their teeth as they brush their clothes, and he must line them up after breakfast and see that it is done.

I wish we could have the same thing in the American army. It would help a great deal.

We find also in the Army that our men suffer greatly from the accumulation of salivary deposits, and many suffer from pyorrheal affections. In fact, those that go to the Philippine Islands seem to be in worse condition, as far as that is concerned, than at home; and many of them lose their teeth in the Philippines from pyorrheal diseases.

We have also a great many different cases of stomatitis to treat, especially in those who come home from the tropics. There is a disease there known as sprue, which produces ulcers in the mouth and on the tongue and goes through the whole alimentary tract, and the membranes become more or less inflamed through the progress of this disease; but we have found when we can get those men into the dental office, thoroughly cleanse their mouths, and give them antiseptic mouth washes, in a little time the diease begins to abate. The inflamed condition of the mucus membrane disappears, and the men have less difficulty with the bowels afterwards. It seems to be a great help toward the cure of that disease.

The President—We owe thanks to our fellow member Dr. Potter for coming from Boston, and to Dr. Marshall for letting us hear from the side of the Army. The Institute returns thanks to them, and to those who have come before us and aided us in the discussion of this subject.

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ANNOUNCEMENT.

NATIONAL DENTAL ASSOCIATION.

WILLIAM CARR, PRESIDENT, 35 WEST 46TH STREET, NEW YORK.

The twelfth annual meeting of the National Dental Association meets in Boston, Mass., July 28-31, 1908, inclusive, at the Hotel Somerset, Commonwealth avenue.

This hotel has been selected as headquarters for this Association, where the general and section meetings will be held.

The clinics will be given at Tuft's College Medical and Dental School, on Huntington avenue, a short distance from the hotel, on Wednesday and Thursday mornings.

Hotel rates have been reduced for this meeting at the Somerset. European plan. Secure rooms by wire or letter to the hotel or to the local committee of arrangements.

As it is twenty-eight years since last the Association, then known as the American Dental Association, met in Boston, this meeting promises to be one of the most interesting and important gatherings within the history of the organization.

Boston, being an historic city, has many points of interest within her borders and suburbs for the stranger to enjoy. Her suburbs are considered the most beautiful within the United States, and particularly so at this season of the year.

The local committee is busily planning features interesting to the visiting delegates and ladies who accompany them, and the officers of the Association hope for a large attendance.

Membership in the Association is open only to delegates from their State Societies, but a most cordial invitation is extended to all reputable practitioners to attend this convention.

WALDO E. BOARDAN, Chairman,
FRANK T. TAYLOR, Secretary,
419 Boylston St., Boston, Mass.,
Local Committee of Arrangements.

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THE JOURNAL
OF
THE ALLIED SOCIETIES

Vol. III JUNE, 1908. No. 2

THE NEED OF CONCERTED EFFORTS TO DISCOVER BETTER DENTAL PROPHYLACTIC MEASURES.

Among the scientific enterprises of our time, none are more worthy of observation than those investigations that have for their object the prevention of disease. It is of the very essence of our professional ethics that they shall have this fundamental note of altruism that seeks to make our services unnecessary. The achievements of medicine have been great indeed in this direction during recent years, and researches are now being conducted with the same object in view on a greater scale probably than ever before. But no disease is so prevalent among all classes in every civilized country as the one whose destructive action makes necessary the labor which takes most of our time and energy as dentists.

There is abundant evidence that our Boards of Health and Committees on the Physical Welfare of School Children, are realizing what an important factor in the life and capability of every individual is the condition of their teeth; and what seemed a startling statement of Prof. Osler's belief, that he would unhesitatingly say, that defective teeth produced more physical deterioration than alcohol, may well be recognized as a moderate expression of a well founded opinion.

There is little doubt, too, that all who have had opportunity to observe the teeth of the masses have been impressed with the prevalence of dental decay and destruction. This fact has been attracting attention in Europe as well as in this country. In some of the municipalities of Germany, clinics have been established for the treatment of the teeth of the people.

The British Dental Association has issued a pamphlet on "The Preservation of the Teeth," which contains an extract from a report of a Committee on Physical Deterioration, "presented to Parliament by command of His Majesty" in 1904, which says in part: "There is no question that the teeth of the people have become much worse of late years, and in many parts of the country may now be described as very bad. On this point there is no difference of opinion."

This pamphlet contains recommendations directed to hygiene of the mouth, and pertinently makes the statement in large type that *"Clean teeth do not decay."* It urges very properly that in addition to brushing, chewing hard food is a means of cleaning the teeth. Dr. William H. Potter, of Boston,* in a report of the examination of the teeth of more than twelve hundred school children, shows a deplorable state of dental disease among them, and this is probably typical of all localities in this country.

The awakening of interest in the dental apparatus of the people, and its bearing upon physical welfare, naturally reminds us of the fact that efforts to keep teeth clean, made either by patient or dentists, or both, are the only dependable preventive means we know. As for the qualities of the oral fluids that make it so difficult, and even impossible in many instances to accomplish this, we know nothing. How inadequate are efforts to keep teeth clean, made under most favorable conditions by our regular patients? Even when supplemented by "antiseptic" powders or lotions the results are only a feeble restraint on a tendency constantly operating in the numerous cases of marked predisposition to caries. How can we expect then that any great impression can be made on the general tendency of the teeth of the people to decay, by inculcating habits of oral cleanliness. If the teeth of our patients, both children and adults, who come to our offices at quite regular periods for examination, are so repeatedly found decayed, when in the intervals they have been making their best efforts to prevent that condition by cleansing operations, we must be convinced that a decided need exists for discovering the aetiology of the condition obnoxious to decay, in order that efforts may be made to apply preventive measures as near the underlying cause as possible. In fact, it must be done, or our specialty cannot hope to maintain its status, in the revelation sure to come, through awakened public interest in general dental conditions. It would be a much more congenial and gracious task to present the great accomplishments of dentistry and rehearse its claims to scientific progress; but these pleasant duties have been and are now being fully performed; although well founded, they relate almost entirely to repairing damages, and correcting deformities. It seems a good time, however, to recognize this great deficiency in our attainments, and confess the truth of a statement made by the editor of the London Lancet in discussing dental disease: "There seemed to be a general belief, at any rate amongst those practicing dentistry, that the cause of caries had been found, and the fact seemed to be lost sight of that all that Dr. Miller had done was to demonstrate the phenomena of caries, and although his researches had shown the channels in which further investigation should be pursued, the actual cause of caries was still unknown, and is to the present day unknown."* Attempts to meet the general tooth destruction now going on by making repairs, will necessarily be unequal to the demands of present conditions, and it is hardly conceivable that dentists of experience can expect to accomplish enough prevention by methods within our present knowledge to meet the situation. Antiseptic lotions have proved a delusion and a snare when depended on, but additions are continually made to the long list of them, with unabashed claims of efficacy. Miller made many observations and experiments and discussed this subject at length in his "Micro-organisms of the Human Mouth," published nearly twenty years ago, and his concluson was, "Under all conditions, however, the chief thing is the thorough mechanical cleansing of the teeth," and it remains true at this time.

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*Journal of the Allied Societies, March, 1908.

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*London Lancet, October 21, 1905.

In those rare cases of relative or complete immunity from caries, however, that we occasionally see, the teeth are apt to be found comparatively clean, and often with little or no cleansing efforts made by their possessors. Whereas, in conditions obnoxious to caries all the efforts to produce cleanliness are more than offset by the constant influence of the oral fluids favoring the adherence to the teeth of the so-called mucuous plaques, stains and debris of food. In short, the constituents of oral secretions in themselves, or in their relative proportions, are responsible for conditions that produce decay of teeth, or immunity therefrom. Teeth that most need cleansing cannot be kept clean by their owner's efforts, although such efforts should not be relaxed. It seems evident that concerted effort should be made to institute systematic investigations that we may expect will lead to more effective prophylactic measures. It must be realized that, expressed in the colloquialism of the day, *"it is up to" dentistry* to advance and occupy in this respect the almost vacant field of stomatology.

Patient and creditable individual investigations have been made, but with little or no practical results as yet. Methods of research need to be clearly stated in detail, so that experiments may be duplicated by others, and any claimed results from investigation may be confirmed or refuted. A co-operative plan by methods agreed upon would save time in eliminating faulty methods. The problem is a deep and complex one, which will need the advice and assistance of chemists and physiologists, to formulate, after due consideration, a definite plan of procedure. Such help can undoubtedly be readily obtained and an acceptable scheme adopted. It will involve self-sacrificing efforts, and appropriations of both time and money, but such efforts are nowhere more likely to be made than by those who have already shown interest in maintaining professional standards; by those who believe that professional ethics are concerned with service, and not altogether with business; by such men and such societies as are maintaining this Journal. Immediate practical results cannot be expected, but the situation demands that a beginning of such research should be made, and that both the agreed plan of investigation and any results obtained should be published, in order that all may assist in the work who will. In the meantime oral hygiene should of course be inculcated, as it is the only preventive measure we know, but it is not one we can expect much of, nor be satisfied with.

The Chemical Department of Harvard Dental School has already made an effort to interest dentists in the chemical analysis of saliva, but with little result thus far; but public interest in dental conditions among the people, and our recognition of our own lack of ability to meet the situation in a scientific way at all commensurate with the great need, will no doubt stimulate new interest, and more willingness to undertake the great problem that confronts us.

J. MORGAN HOWE.

SOME CONSIDERATIONS IN DISEASES OF THE MOUTH.*

BY WILLIAM W. MARVEL, D. M. D., FALL RIVER, MASS.

In presenting this paper, it is not my intention to bring anything new before you; only to recall a few things which are as thoroughly a part of our particular field of work but are nevertheless often lost sight of in our common, everyday practice.

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*Read before the Harvard Odontological Society, December 19, 1907.

It is a fact in our profession that too often we are satisfied with the mediocre knowledge of the functions and anatomy of the teeth and the necessary steps to bring about resolution in diseased conditions or to replace lost members artificially. As one of our own professors has rightly said: "Not much of a profession can be formed merely on thirty-two teeth," yet it is only occasionally that the average dentist has retained from his vast store of knowledge sufficient to accurately and intelligently cope with the more or less frequent and vague cases involving the surrounding tissues.

It is the aim of one of the professors of the Philadelphia Dental College to train his students in quick perception. His method is to ask a student to make a hasty examination of a patient's mouth and tell what he had seen there. He expected them to detect immediately any anomalous or pathological conditions of the surrounding tissue as well as ordinary students would observe carious conditions of the teeth alone.

We all know how sometimes in our concentration upon an interesting filling in a certain tooth we become almost oblivious to other existing conditions to the extreme discomfort of the patient.

We cannot be too exacting in our preliminary rough examination. The lips of the patient may indicate the passing through some illness mild or severe. Fever blisters, fissures of the lips, etc., should limit our operations to the most necessary, or before we know it, we may be rubbing our sterile intsruments over a circular ulcer with depressed center and glandular enlargement below—the labial chancre. It is well for us to examine carefully the least indication which might lead us to suspect that some form of stomatitis exists.

I came across a peculiar case some ten years ago. Mr. M., the son of a physician was sent to a dental practitioner for a Richmond crown on a central. A few days after the crown was completed, a horrible condition of the tongue and contiguous mucus membrane presented itself. The surface of the tongue was as if daubed with a smudge of dirty white paint of appreciable thickness and with sharply defined edges. The cheek was covered entirely with a coating somewhat whiter and the tongue was soft and supple showing clearly the indentation of the teeth. The interstitial spaces filled up with sequestered membrane and the foulness of it all was beyond description. The patient could not eat and only with difficulty could he breathe. The dentist said it was a case for the boy's father to care for while the boy's father in turn sent him back for dental treatment, because he said the condition must have been due to an infection from something the dentist had used in grinding down the root. I saw the case in consultation and could see no connection between the condition and any instruments used. Upon questioning the boy, we brought out the fact that he was in the habit of frequenting the docks and while there smoked almost continuously a clay pipe; not being particular always that it was his own pipe.

I diagnosed the case as one of Leukoplakia or leukoplasia. I further found upon investigation of the disease that it is a frequent affection among such men as glass blowers, who use each other's blow pipes. This particular form is sometimes known as Smoker's Patch.

The treatment was simple. We stopped the smoking. His general health was attended to; his bowels were kept regular. We painted the surfaces four or five times daily with chromic acid solution (gr. X ad. aque I oz.), also frequently with bi-carbonate of soda. He responded admirably and was fully restored in twelve days. This might have been nipped in the bud if the dentist, in his preliminary examination, had recognized the incipient stage instead of being entirely engrossed in grinding that root.

It might not be out of place right here to speak of another disease of the mouth which has often come under my observation. In a city like Fall River, where there is a large population of foreigners, these rather rare, and therefore interesting cases, show themselves more frequently than among Americans. I have noted a large number of cases of stomatitis, either local or systematic. The commonest form seems to be transmitted by a practice known as "sucking the shuttle." When a new bobbin is placed in the shuttle, the thread is drawn through the hole by sucking. This disease is known among the operatives as "Putrid sore mouth." The treatment is chlorate of potash; its action is both constitutional and local for the salt when swallowed is excreted unchanged by the saliva. Perhaps the best form of administration in order to secure both these actions is in compressed tablets which are sucked and the saliva swallowed. In two or three days the ulcerated surface thus treated should be clean and healing and in a few more days recovery should be complete.

A case came under my observation some time ago which some of you may recall, as I have spoken of it before. In the first place the history of the case is extremely interesting in more than one sense.

The ancestry of the child is vouched for by Dr. Ralph W. Jackson, who referred the case to me.

In a poor, depraved family a child was born with his grandfather for his father; that is, the woman gave birth to this child by her own father. Of course, the child was nothing to be desired either physically or mentally, and to make bad matters worse, unmistakable evidences of syphylis were present. At the age of four a particularly severe ulcerative stomatitis developed which resisted absolutely any of the ordinary modes of treatment. So, as a last resort, we decided to extract every one of the deciduous teeth, as they were extremely loose and were almost covered up by the engorged and flabby tissue. This was done under chloroform and somewhat to our surprise the case responded to a strong solution of perchloride of mercury made up with aqua rosæ and glycerine and freely swabbed on the affected parts.

The condition slowly improved and in time seemed quite cleared up.

I am doing my best to keep track of this boy for if he lives it will be a matter of some speculation in regard to the positions of his permanent set. I hope to have something more to say about this case in a few years.

A TALK ON "PYORRHOEA": ITS CAUSE AND CURE.*

BY ANDREW J. MACDONAGH, D. D. S., TORONTO, CANADA.

Mr. President, Ladies and Gentlemen:—I have great pleasure in being here this evening and I want to thank you and your committee for the invitation you have extended to me. I live in a country not very far from you.

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* Read before The New York Institute of Stomatology, March 3rd, 1908.

Your president said I was one of the younger blood; over there, I am considered one of the old men, so it was gratifying to me to hear your president refer to me in that way.

I have been about twenty-one years in practice in Toronto and before that I was a student for three and a half years in another town in Canada. Toronto is not all of Canada, you know, although over here sometimes it is considered so. I have written a short paper and if at any time I do not make myself understood, or if I do not fully explain any point, it is no interruption to me to have anyone ask me a question.

During my paper I intend to lay more stress on the practical side of the question than in elaborating the etiology of the disease; however, in order to intelligently understand what we are about in treating any disease, we must have some idea of the cause, therefore I have felt it incumbent on me to explain my conception of the origin of the disease.

After having observed as closely as possible for some years, I have come to the conclusion that there are two or three different kinds of diseases coming from many different causes, called pyorrhœa.

We have the condition which exists when the pericementum dies and the alveolus dissolves or is absorbed away without much deposit, if any, of a lime salt nature, having been left on the root. This condition very often follows a severe nervous strain, such as business worry, nervous prostration, great anxiety or grief. It also follows constipation, that is, chronic constipation, and the reason it follows in the wake of these disorders is plain when we consider the anatomy of the parts implicated.

The pericemental tissue is confined in a very small space between the hard tooth substance and the hard bony substance of the alveolus. In normal conditions the blood has ample room to flow in and out without congestion. There is very little flow into the tooth substance, however, as the pulp supplies all the nourishment the tooth requires when the pulp is alive. That condition of things is changed the moment you change the beat of the heart. The moment the heart starts to pump, blood is forced into this tissue, the vessels are engorged and hyperaemia of the pericementum is the logical consequence.

What happens now? We know that as long as the pericementum is normally filled with blood, micro-organisms cannot attack it, but that just as soon as it is anaemic or hyperaemic, bacteria which are always in contact with it can get a foothold, start a little colony and produce their ptomaines and toxins which poison the pericementum and cause a further breaking down in which further habitations for the bacteria are possible, and so on until the whole pericementum is destroyed.

During this paper we will use the word "Pyorrhoea," because at the present time there is no other name which will designate the disease which we know as pyorrhoea. When we consider that this form of pyorrhœa (so-called) is probably more prevalent than any other form, it immediately leads us to contemplate the writings of men who claim that pyorrhœa is due entirely to lime salts having ingress at the gingival margin, or that pyorrhœa is always the result of uratic deposit from the blood.

That there is a deposit from the blood, a deposit of lime salts after the blood has oozed into the injured part and broken up, we need not have the slightest doubt. That kind of deposit is often there in the condition of pyorrhœa just described, particularly so if that condition has existed for any length of time, say a year or more. It is also quite easy to see how lime salts could enter such a cavity from the saliva and form deposits on the root.

But to assert that the deposit is always there in large enough quantities to cause the disturbance seems to me, with the experience I have had in the treatment of pyorrhœa, to be going a long distance out of our way to find a local cause. When I was here last December I brought accurate records of 642 cases which I had treated in the year and four months previous—nearly 80 per cent. of which had little or no deposits on the root.

To cure this condition of pyorrhœa, it has been claimed that I use my scalers and scrapers to remove the deposit and that therefore I am removing the cause so that the disease will disappear. But, Sir, when we consider the conditions for a moment we will readily understand that although there is not a particle of lime salts on the roots, nevetheless, on account of the dead pericementum and the millions of micro-organisms and their habitations, if we desire any sort of success, let alone a permanent cure, we must most assiduously apply ourselves to the removal of all dead, decaying and foreign material. Not only that, but in the majority of cases, we must currett the living tissue or cauterize where it is impossible to currett, in order that we get new and healthy granulations.

I know that in advocating the origin of this disease in bacterial action on anaemic or hyperaemic pericementum, made possible by the opsonic index being lowered, I am combatting the ideas of some of the best and greatest investigators in the subject and of course, may be wrong, but I am depending not so much on my knowledge of anatomy or urinary analysis as upon the records of my cases and my power of observation. If the statistics I have kept show anything, they most certainly indicate that the line of argument I have just used is the correct one. Dr. Talbot speaks of the alveolus being an end tissue, and that it is through faulty elimination as affecting the blood supply, resorbed or dissolved away, but he does not take into consideration the fact that the place where we find pyorrhœa is usually in the pericementum, and we have often seen, many of us, the alveolus standing partially in place and a pocket existing between it and the root of the tooth. You are often able to run your instrument up there and turn it. toward the buccal or lingual side and find a solid part of the alveolus still in place and doing good service as far as it can.

That the alveolus is sometimes prematurely resorbed, I most certainly believe. I have in my own practice, and probably some of you have in yours, cases where this fact is demonstrated, but in these cases—and they are found usually in athletes who have done a great amount of training—in these cases, I say, the teeth stand in position, the pericementum is intact, but the whole structure is loose and the teeth move with the pericementum and gum tissue. There is no discharge at the roots, and the gums are attached to the teeth. I had a case sent to me by one of our Toronto dentists during the last year, of one of our champion golf players who was affected in this way. I have had three golf players affected in the same way, and yet golf is supposed to be a very healthy game. I lke it myself.

Of course, in an over-trained athlete, particularly one of nervous disposition, we are likely to have pyorrhœa in the ordinary form.

Just here I want to say that it is not my desire to belittle Dr. Talbot's work, nor Dr. D. D. Smith's work, nor Dr. Younger's work, nor any of those who have given time and energy to clearing up the subject and each one of whom I believe has discovered certain truths concerning the origin of the disease, which makes it easier for other investigators to follow in their line. I was at a convention not long since, when one of those gentlemen was ridiculed because he said he considered that pyorrhœa was due to irritation at the gingival margin. Some very unkind things were said about him, which was too bad, because that man has probably spent a great deal of time in looking up the subject and has done a great deal of good.

A form of this disease which we sometimes find is no doubt due to rheumatic or gouty diathesis. In that form calcic deposit is formed on the root between the gingival margin and the apex, not having an opening at the gingival margin. In fact, it is very often mistaken for alveolar abscess, but upon testing the tooth you find the pulp is alive, and you have to make an opening through the gum over the affected part to succeed with the case. This is a very annoying form and is apt to cause serious constitutional disorders, if extensive, on account of the absorption which is likely to take place.

I had one patient, a gentleman who informed me that a bad attack of pyorrhœa always followed an attack of rheumatism, and after his pyorrhœa was cured the rheumatism disappeared, and this was without changing his diet or taking other constitutional treatment.

I have had a number of patients who were cured of rheumatism after being treated for pyorrhœa, but they were also treated constitutionally for the rheumatism.

Another form of pyorrhœa which we find is due to brushing the teeth improperly, or to the use of silk floss when not properly understood, also to ligaturing and to separating the teeth. Malocclusion is also a prolific cause, and of course when the teeth are hard and dense and the pericementum thin and anæmic. All of these causes are of course local.

There has been an idea that the pericementum was about the same thickness around all teeth. I have a friend in Toronto who does nothing but extract teeth. He has been supplying me with teeth freshly extracted, and we have been together looking into the thickness of the pericementum, and there is a wonderful difference in the pericementum of patients about the same age.

If your patients have too hard a brush and drive underneath the gum, the materials which they should wash off the teeth and out of the mouth, namely, food debris and micro-organisms, you are very likely to have sufficient irritation in the pericementum if conditions are at all favorable to start the trouble. And just at this point, gentlemen, it is well to say a word about brushing the teeth, as it is one of the great factors in keeping teeth healthy which have been affected by pyorrhœa.

On account of my radical opposition to the usual method of brushing the teeth, which I have held for the last ten or fifteen years, it has been said I did not believe in brushing the teeth, and at many conventions I have had to combat that idea. However, at the present time there are many men taking the stand I do, and I am not now accused of the heresy. The brushes which are used are nearly all too large. You cannot manipulate them properly in your mouth, and in order to preserve the teeth as well as the gums you must brush always from the gums onto the teeth, and you must do it thoroughly. In order to clean the lower anterior teeth at the distal gingival margin you must have a brush with not more than 4 rows square of bristles of the ordinary tooth brush, but if that brush is used faithfully, after every meal and before retiring, the patient's teeth will never accumulate tartar in that position. A great many of my patients are faithful in this and have no tartar on the anterior teeth at all, and they tell me it is no great trouble to brush the teeth in the proper manner. They used to have a great deal of trouble before and they are, of course, very thankful for the information.

Now, gentlemen, there is a lot more to be said along this line, but I want to say some other things, so we will turn to the treatment of the disease. There are two methods of treatment which I believe are successful. One is called the Opsonic Method and the other the Local.

Of course we hear of constitutional treatment outside the Opsonic treatment through advertisements of patent medicines, but in practice we pay no attention to them. The Opsonic method I will not speak of to-night, unless by request. I want to speak of the method I use and probably that is more interesting. In the first place, we have to consider what method to use to reduce the sensitiveness and minimize the pain in operating. A few years ago the pain was considered so great that it was an easier matter to extract the teeth than have them treated. However, in our operations at the present time we cause very little pain, partly by using good instruments, and principally by knowing how. Sometimes we use an anæsthetic called Nervocidin, a drug obtained from a plant in South Africa called the Gasu-Basu plant. This drug has only come into use in recent years and is practically only of use to dentists. A great deal has been written about it by men who used it and I fear by men who never had any experience with it. It is a dangerous drug if not handled carefully, and intelligently.

I have seen quite a large tract of bone destroyed by its evil influence, and have seen the pulp in a tooth destroyed when such destruction was not desired. It is given us as a harmless anæsthetic, but when such results follow its use, and when we know it is highly toxic, its harmlessness must be taken comparatively.

It is a very powerful anæsthetic when applied topically either to tooth substance or to gum or bony tissue and as such it is a good servant, but we must always remember that if placed in a deep cavity in a tooth, that we are likely to have the pulp devitalized as well as anæsthetized. To use it in pyorrhœa we make a solution of about 1 in 500 to 1 in 1,000 and after winding some cotton around a broach, dip it in the solution and place it rapidly in the bottom of the pocket. Then go ahead with your instruments and scale off any deposits which may require scaling and which will not cause much pain, allowing your anæsthetic ten minutes or more to do its work, of course being careful that none of it is mixed with the saliva or allowed to escape into the mouth, lest you have the muscles of the throat paralyzed and a miserable, suffocating feeling overcome your patient, which will last for several hours. I had one patient four hours in that suffocating condition and if I had used more probably I would have had a Coroner's Jury to face.

One feature about the anæsthetic which is of benefit to us is that the anæsthesia does not pass away quickly. We have to pay further attention to the anæsthetic later on and we will leave it for the present.

Taking it for granted that t[illegible]uments are thoroughly sterilized, and as a method of ster[illegible] we prefer boiling the instruments in a receptacle made for the purpose which is in plain view of the patient, just the same as we believe in thoroughly washing our hands and of not being afraid the patient will know it. We use our instruments and remove all calcerous deposits from the root. At this point I want to make a disgression.

In the great majority of teeth the most sensitive part of the tooth is that part just at the gum margin where the enamel ceases to exist and the cementum starts. The cementum, of course, should be covered by the gum tissue, but we find it very often not covered and hyper-sensitive. The enamel also at that juncture is sensitive, exceedingly so, and our great care in using our instruments must be not to pass over this area any oftener than it is impossible to avoid, but while working in the pockets, keep the instruments as far down as necessary. This necessitates a rotary motion, which after a time becomes easy to you. I say rotary motion—I cannot describe it very well. The whole object is to work the instrument on the root laterally and keep from moving your instrument up over that sensitive part—keep from going past the gingival margin any oftener than necessary.

I have been asked to describe the instruments I use. There is nothing new about them particularly, except my files. I may have changed the shapes a little from the originals and have numbered them to suit my own convenience, but, as a matter of fact, they are with some slight changes copied from Tompkins' and Younger's instruments and can be obtained at almost any dental depot. I have them with me and will be pleased to show them to you. I do not think it matters so much the instruments you use as the use of the instruments. Dr. Hutchinson has some which are very fine and there are a number of others on the market which will answer the purpose as well, but I have grown accustomed to the ones I have and use them to the best advantage.

At first I used Tompkins' a great deal, and then Younger's, then I used Mills' prophylactic instrument, and I still use that on account of the rapidity of its motion in certain cases, but it is not good for the finer work I have to do, as a rule, so it is not used often in my practice.

Now, we will suppose we have the deposits removed which are attached to the tooth. [illegible] the clinic to-morrow I will go fully into the technique. W[illegible]ill the dead pericementum removed and we have used o[illegible]ments to detach any particle of dead bone which might be lying around. Sometimes the dead bone is not attached to the tooth. Very frequently I find little pieces of dead bone attached to what we might call the outside of the pocket. I include that, of course, in all dead bone which may be found lying around.

What is the next step? The next step is to be sure we have two freshened surfaces if we want them to unite, therefore it behooves us to consider the surfaces we have before us. We find that the mouths of the canaliculi of the roots have become closed by lime salts, whether from the blood or the saliva if matters not, and the small tendrils of animal matter in the canaliculi are sealed in. Your scraping, of course, if well done, has to a degree removed these seals, but it is practically impossible, under the circumstances, to have done it entirely. You can find that out by taking a tooth which has been affected with pyorrhœa, put it in a little rubber tube—around the root—take your instrument and scrape that root as thoroughly as you can, take off your tube and see how well you have succeeded.

You find also that the gum tissue is not in a very healthy condition, nor the bony tissue. In fact, the walls of your pus pockets or the parts of them which remain are laden with micro-organisms and their bi-products, all of which must be removed, and also if you have used Nervocidin, you have a dangerous drug lying there which, of course, you must make provision to get rid of.

To dissolve the lime salts we use either Hydrochloric, 75%, or Sulphuric Acid, or both, and to remove the objectionable animal matter and make a fresh scar use Tri-chloracetic, saturated, full strength. In using these drugs of course you must be careful; they are very powerful. There is one little point, not essential to the treatment, but which I have found of value: If you use hydrochloric acid on the tooth without any precaution, after the operation is over the tooth will be exceedingly sensitive to heat and cold and to the touch, almost impossible to brush it. In order to overcome that I dry the tooth as thoroughly as I can and then varnish it before using the acids. Harvardid Varnish is a fine thing for that purpose, but it is a little difficult for us to get it. You can use shellac. The varnish will run over on the gum, take your compressed air or blow syringe and harden the shellac, then take a little instrument and cut away the shellac which is just overlapping the gum, because if you do not it will be an additional irritant. You have now protected the part of the tooth you desire protected.

I was asked to-night if I ever found an attachment between the teeth which were treated and the gum tissue after it had been treated. I would say yes, I do. In the great majority of cases there is an attachment. I do not say the periosteum or pericementum grows again. In order to decide that point it would be necessary to resort to dissection, and as none of my patients whom I could use for that purpose have died so far as I know, I have not been able to do so.

Patients who have exhibited themselves for me at our conventions in Toronto have proven, however, that you can not run an instrument between tooth and gum tissue without drawing blood and as far as you can see in that sort of examination the attachment is a direct one.

Dr. Bogue, Sr., was telling me to-night he had seen attachment in two of his cases and I was glad to hear it. I had not met any person before who had used his method and obtained an attachment. The hydrochloric acid I use is 75%. I would use it pure only for the inconvenience that if there is only a trace of ammonia in the breath you will have disagreeable fumes, and if inhaled they are very irritating to the bronchial tubes, whereas if you put enough water with it at the start, you do not get those fumes.

After you have done all you can by local treatment, wash your hands and boil your instruments. I find in some places dentists do not really boil or sterilize their instruments. That point, of course, is unnecessary to make in a society of this kind, but it is sometimes necessary, and well to emphasize it because some of our confreres might not be so careful.

Teach your patient how to brush his teeth and be sure you impress it on him. Make him feel how necessary it is. Have him understand that if any food material is allowed to get between the gum and the tooth tissue there will be no healing. I take the brush myself and stand beside my wash basin and show my patient how to brush the teeth. I brush my own teeth and the next time he comes back, if his teeth are not thoroughlyy clean —well, sometimes I make enemies, I say things in a strong manner, and if he comes back the second time and has not done what I want, I refuse to work for him. He either must do what I say while he is my patient or he becomes someone else's patient. They have gone to other dentists, who saw what was the trouble, and sent them back to me, so they were between the devil and the deep sea, and they chose the devil—which was me.

In cases where the patient is inclined to be anæmic we must resort to massage. Find out, if possible, the cause of the pyorrhœa, make our recommendations accordingly, and warn our patient against bad habits.

If necessary advise your patient to see his physician. A dentist in taking care of a patient will often be able to forewarn him. Sometimes we are rebuffed, but generally it is all right.

A colonel in one of our regiments came to me for treatment. I saw his gums were not responding properly to the treatment and I sent him to his physician for examination. I told him to have the urine properly analyzed and he would know his condition. His physician told him there was nothing wrong, to pay no attention to what I said.

In two weeks' time the gentleman was in the hospital. He stayed there eight weeks and was in very bad shape. Since that time the physician has been telling everybody in town that the dentists know more than he thought they did. I do not suppose you have that trouble here, but we do over there—that we do not always get recognition from the physician. Perhaps it is good for their business.

Often during my practice I have patients sent to me whose teeth are apparently beyond redemption, so much of the bone and peridental membrane and in fact the periosteum are gone, that to expect a rebuilding would be folly. However, there are some teeth comparatively solid and we desire to retain and make useful those which are exceedingly loose. It is quite possible to do so in many cases, particularly is it feasible if, say, the two or four upper or lower incisors are the shaky ones.

What we must do is to resort to replantation, but replantation, if not well understood, is often a failure. I have been gratified lately to have dentists tell me that they have seen teeth I replanted years ago doing good service to-day. I am glad to say we have some of the finest dentists God ever made, in Toronto, and they are very glad of any man's success and they are good enough to tell him when there is a success. They wanted to know how these teeth were replanted, and it is always a pleasure for me to tell them.

I may say I have been replanting teeth for nearly twenty years and so far as I know have had very few roots resorbed, and in every case where resorption has occurred, it has been my fault. However, where teeth are affected by pyorrhœa to such a great extent, if we replanted them in the ordinary way, expecting them to remain of their own attachment to the jaw, the operation would be a failure. What we must do in those cases is to treat the roots of loosened teeth, when extracted, as we would do a porcelain root, that is, make them perfectly smooth, remove all peridental tissue and having thoroughly and completely filled the root, attach them to a bar which extends into the pulp chamber and which is soldered to a gold plate sufficiently strong to withstand the strain of mastication and which is fastened permanently to the solid teeth. Make your attachment in the solid teeth and attach the loose teeth to it by running the bar on the lingual side, showing no gold, of course.

A word regarding the technique of the operation. After extracting the teeth we drop them into 4% formaldehyde for four minutes or so, take our instruments and scrape the root clean. Then if the tooth had elongated, cut enough off the apical end to allow for shortening the tooth the distance it was elongated, and having fitted our splint to see that everything is all right, take an instrument, which we have run through the flame to sterilize, go down into the tooth socket, break up the blood clot that is there and start new blood flowing. At the same time or as soon as possible, dip the root into hydrochloric acid 75% pure, have your assistant nearby, and cement mixed ready. Fill the cavities which are to take the retaining appliance with cement, press the retaining appliance home, using a small pair of plyers to bring your implanted teeth into alignment.

As I do no operations in my own office, excepting the treatment of pyorrhœa and consultations, I go to the offices of the other dentists and in that way I have always a first-class assistant.

If you do this work faithfully and well, you will have the teeth in place, and they will be much superior to any bridge from the patient's standpoint. You will not have resorption, as the roots will be only touching gum tissue. You will not have shrinkage of the gums because they will cling around the root of the tooth as if they had grown to it, and in some of my cases they have certainly grown to the root, although it is not absolutely necessary. Many years ago I implanted a gold root in the jaw of a man to show it could be done, and it is there to-day. He comes down to New York often and you may have an opportunity of seeing him.

I have had so many of these cases and they have been so satisfactory to me that I would like some of you to undertake to do that work if you are not doing it now. You can save many teeth and be a great benefit to humanity.

I thank you sincerely for your attention.

SOME REASONS FOR ORTHODONTIA ON THE DECIDUOUS TEETH, WITH DESCRIPTION OF AN APPLIANCE.*

BY E. A. BOGUE, D. D. S., M. D., NEW YORK, N. Y.

Fig. 1: Represents the mouth of a society young lady, about 33 years of age. Owing to the cramped condition, the age of the patient and her social engagements, I concluded that extraction of the right upper lateral incisor was the proper treatment for this

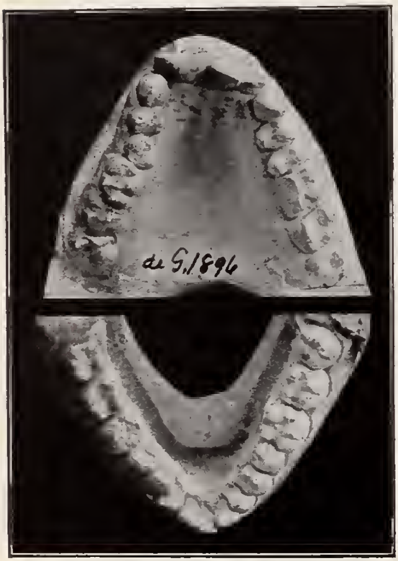

FIG. 1—A

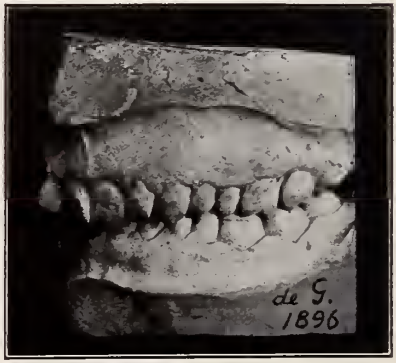

FIG. 1—B

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* Read before the American Academy of Dental Science, March 4th, 1908.

case. I think it will come under the head of what has been so well named "judicious extraction," for while it might be possible to regulate such a set of teeth, it would seem even with our present experience and appliances injudicious.

Fig. 2: Is the articulation of a young gentleman at 23 years of age. His first permanent molars were extracted before the second molars were erupted. The consequence is a shortened bite, a diminished face, crowding among the teeth, proximal decay manifesting itself all along, and the largest amount of wear that I ever saw in a mouth at that age, but the best articulation after extraction with one exception that I have ever seen. Indeed, I think it would take an orthodontist of some skill to know any teeth had ever been lost. The spacing that is to be seen here and there was the result desired by those gentlemen who thus advocated and practiced extraction of the first molars, but these spacings occur irregularly, if at all, and, as we have since learned, did not fully protect the teeth that were separated, from decay, while the adjoining teeth were, by the improper bite, forced more closely together, increasing the liability both to decay and fracture.

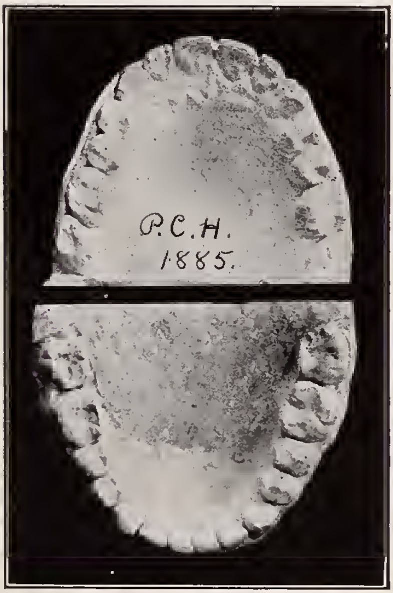

FIG. 2—A

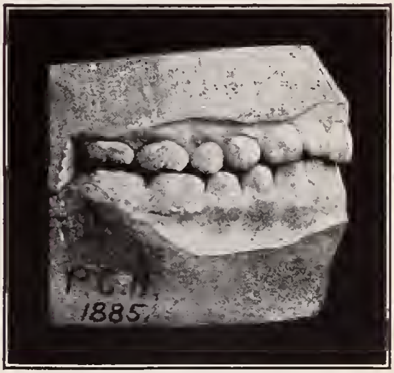

FIG. 2—B

Fig. 3: Represents a Russian nobleman, who was 52 years old when I saw him. A full hour spent in carefully examining his teeth revealed but one cavity, and that was between the right upper second and third molars, where the teeth had been filed apart to find out what the matter was. The matter was a slight so-called calcic abscess between the second and third molars opposite the duct of Steno, caused by a very slight irregularity of articulation of the teeth, which eventuated in the firmly set lower molars driving fibres of food between the last two teeth above. This was followed by the deposition of calcic matter from the saliva, with the usual suppurative result. I asked this gentleman about his food, and the care which he gave his teeth. He told me that a brush had never been in his mouth; that his food was plain, seldom more than one or possibly two courses at a meal; that he was a railroad contractor, building the trans-Siberian railroad; that he lived with his men mostly out of doors, and ate the food they did, but that he rinsed his mouth carefully with from two to four glasses of water after every meal. Excepting where the tartar had deposited in slight amounts oppo-

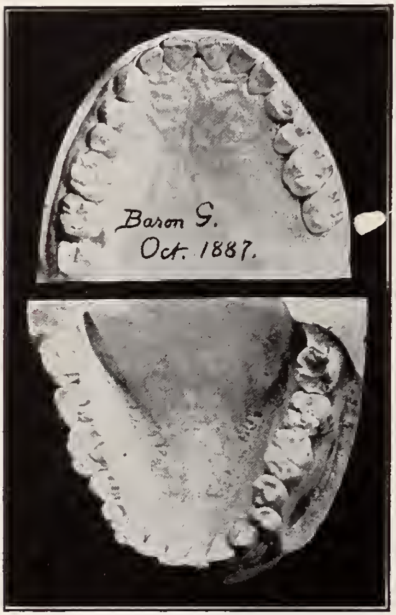

FIG. 3—A

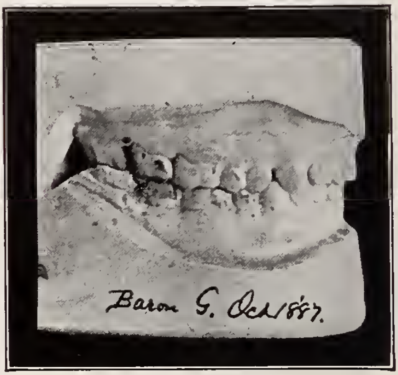

FIG. 3—B

site the ducts the mouth was clean and pure and healthful, the gums hard and pink, and the breath inoffensive,—one of the finest specimens of self-cleansing immunity to decay that I have ever seen among the highest civilized nations.

Fig. 4: Represents a young lady, who, I think, was about 18 years of age when she lost a lower central incisor and two upper first bicuspids, extracted in the hope of improving the appearance of a crowded denture, and after the statement by the mother that the matter of expense was a consideration. No appliance other than a few wedges or twisted silk have been used to regulate. The result is a considerable narrowing of both arches, and an advance of the back upper teeth toward the front of the mouth, along the converging lines of the maxillæ, until their further advance was arrested by the articulation of the lower teeth. A narrowing between the second bicuspids of a little more than five mm. occurred and the lower incisor teeth were projected forward and into irregular and crowded positions.

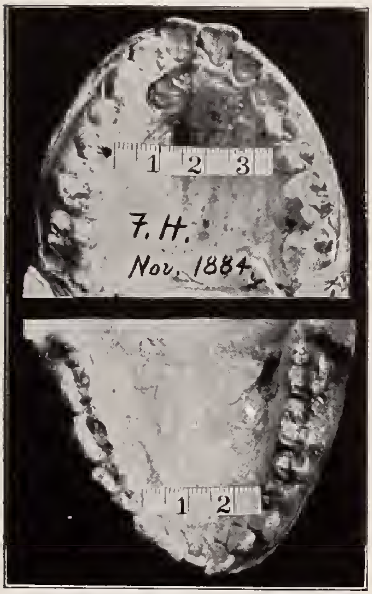

FIG 4—A

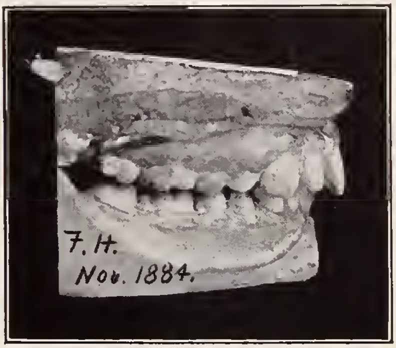

FIG. 4—B

It is noticeable that when teeth in the forward part of the mouth have been extracted the teeth further back coming forward to take their places have also a tendency as they go forward to approximate laterally.

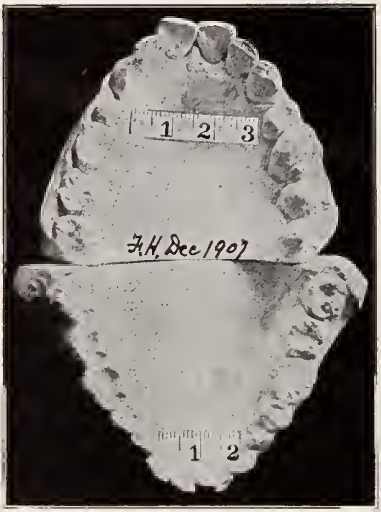

FIG. 4—C

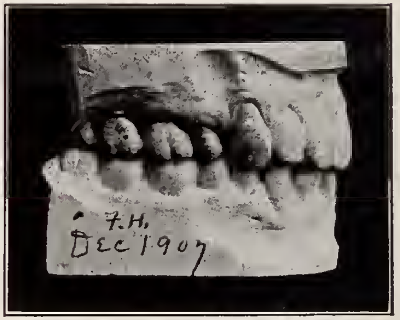

FIG. 4—D

Fig. 5: Represents a young lady, same age as the last, who lost four first bicuspids at the same time. Measurements have been placed upon these teeth in order that all who see the illustrations may be able at once to see the changes that have taken place. There has been a little improvement, though not much, in the appearance of the incisor teeth, but the face has been narrowed as much as the dental arches; the upper second bicuspids have come forward to take nearly the places of the extracted first bicuspids, and have drawn together laterally, so that they are now as near together from side to side as the first bicuspids

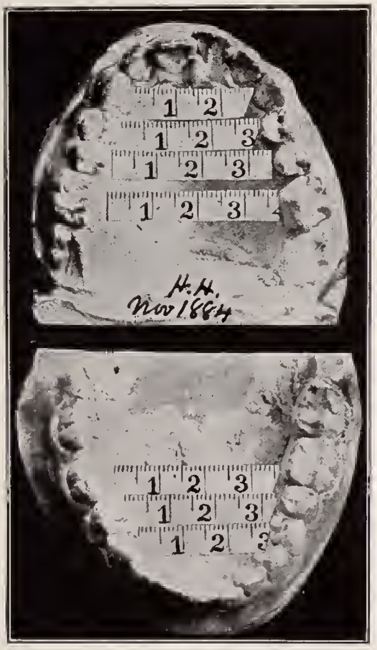

FIG. 5—A

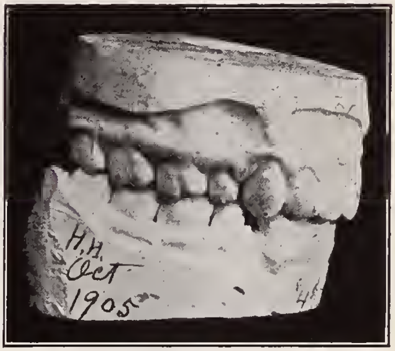

FIG. 5—B

were when they were in the mouth. The lower front teeth are distinctly more irregular, proper articulation has been entirely broken up, and the speech has been thickened. Nature finds it impossible to maintain correct articulation when one or more members of the arch have been abstracted.

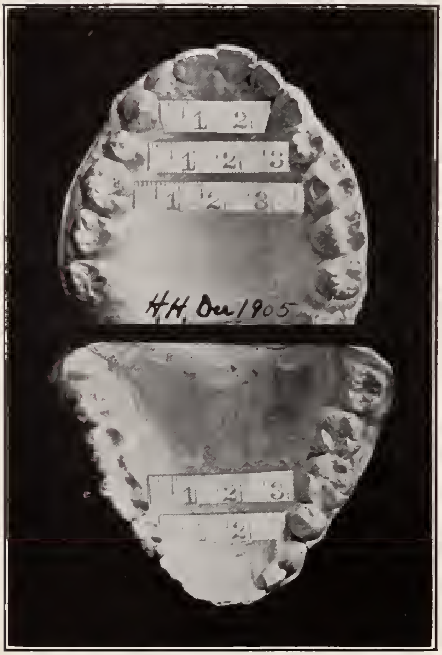

FIG. 5—C

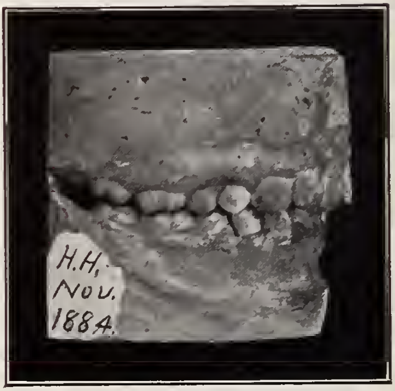

FIG. 5—D

Fig. 6: Shows the mouth of a boy of 13, whose second upper molars were developing buccally and, therefore, were extracted in 1886. The wisdom teeth have taken their positions so nearly that the resemblance is startling.

The second plate shows the mouth after the development of the wisdom teeth, a certain amount of spacing still existed after

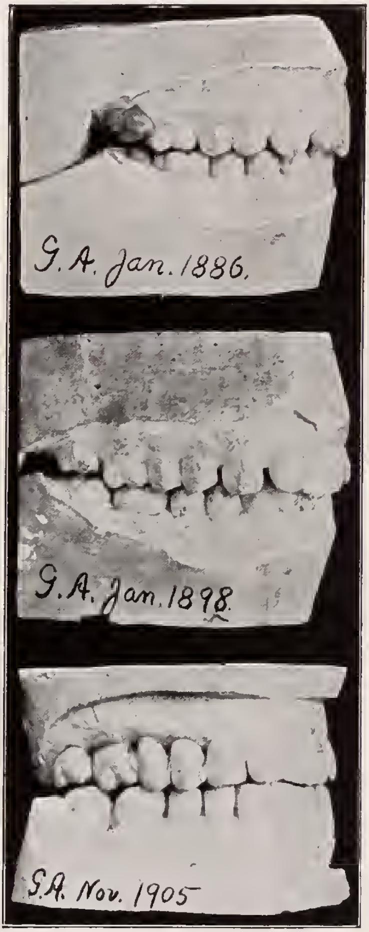

FIG. 6—A.

five years, but the wear on the incisor teeth begins to show, and decay between the teeth, notwithstanding all the care that has been given to them, has been continuous.

The next illustration shows the same mouth in 1905, the articulation is very much closer. The wear is that of a man far past middle age, breakage has been a frequent factor in its present

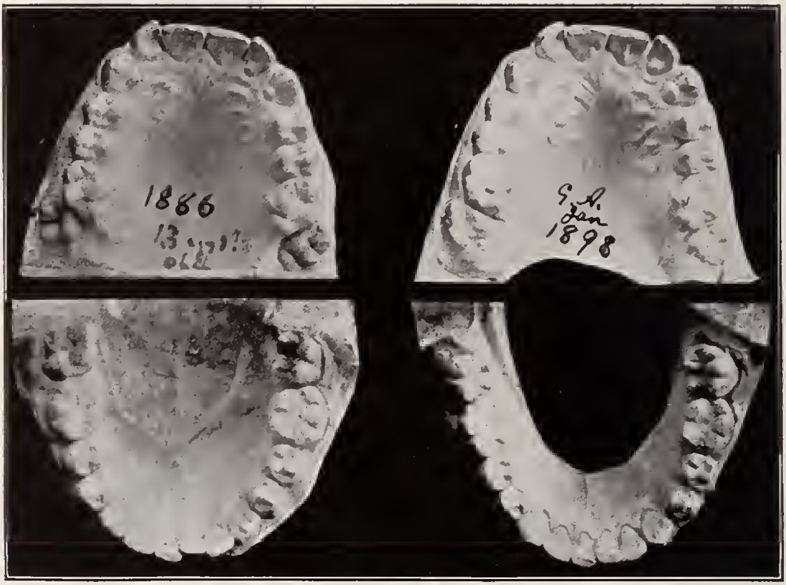

FIG. 6—B.

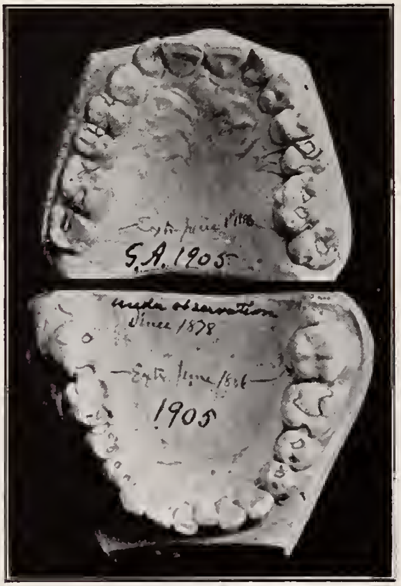

FIG. 6—C.

condition, and while the anterior part of the arch shows no narrowing, the shortening of the bite has resulted in an end-to-end articulation, that has closed up all the spacing that had ever existed and rendered it far more difficult to keep his teeth in comfortable condition than as if he had the full set.

Fig. 7: Shows the teeth of a young lady about 14 years of age, whose teeth projected to such an extent that it was impossible to close the lips over them. At that time—1883—the concensus of opinion was that the upper first bicuspids should be extracted, and this was done. It was not known then, as it is now, that the extraction in the forward part of the mouth always causes the arches to fall inward toward the tongue. Arrest of development leaves them where they were when development stopped, but *extraction* tends to diminish not only the dental arches, but the size of the nasal passages as well, and so impairs proper aeration.

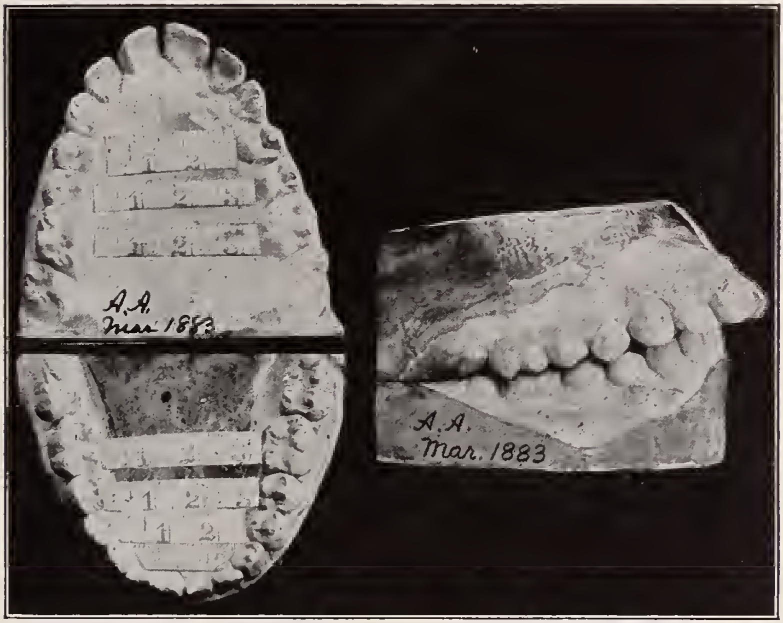

FIG. 7—A.

An effort was made to draw the six upper front teeth backward, but the result was that the back teeth came forward as they always do, or rather, leaned forward, to such an extent that in the course of time the impact between upper and lower teeth drove the crowns of the lower teeth forward so that they leaned far out of their former upright positions, pressed against their forward neighbors, and the result was a projection and great irregularity among the lower front teeth, while at the same time the lower arch was narrowed to correspond to the narrowing of the upper arch caused by the leaning forward of the second bicuspids into the places formerly occupied by the first bicuspids.

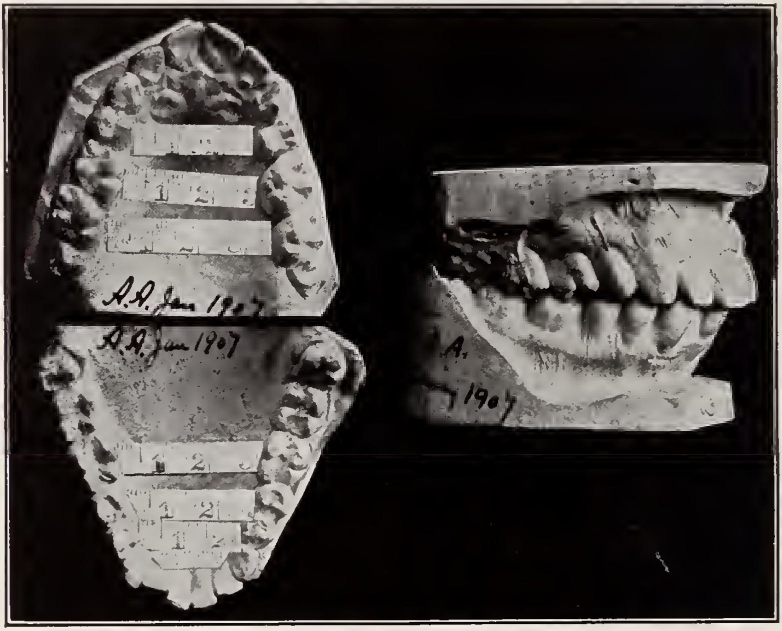

FIG. 7—B.

It will be noticed that the lower arch was fairly regular when the two bicuspids were extracted. It is now quite irregular and narrow. The bite is shortened, the articulation is broken up, the lateral movement in mastication has been seriously interfered with, and self-cleansing, therefore, has been impossible. Indeed, with the teeth standing in their present positions it is almost impossible to cleanse them in any way.

Dr. Pedley, of Burmah, India, attributes a great deal of the projecting upper jaw to the use of the artificial feeding bottles with long rubber nipples. He shows 19 cases from his own practice that he considers deformed from this cause.

Dr. Pedley's paper in the Journal of the British Medical Association for August, 1906, is well worth attention, but it will be found that anything, whether it be bottle-feeding or adenoids, or a prolonged cold, that interferes with nasal breathing and withdraws the tongue from the roof of the mouth, will produce the same effects as are shown in Dr. Pedley's illustrations.

In introducing to you a little appliance for conveniently and easily regulating the teeth of little children whose deciduous teeth are showing evidences of mal-positions, I wish to state some of the reasons why we should begin orthodontic work while the deciduous teeth are still in the mouth.

If the deciduous teeth are kept in health until their roots are absorbed and they fall out of themselves, the permanent teeth should make their appearance where the deciduous ones have fallen away.

Such good condition of deciduous teeth presupposes health of the child and increases the probability of normal and regular eruption of the permanent set of teeth.

If, however, the temporary teeth become decayed and are neglected, the pulp is sure to be reached by decay, pulpitis and death of the organ ensues, crowns break down, the roots of molars become separated, portions of them remain attached in the gums with sufficient firmness to deflect the crowns of the erupting permanent teeth, which have at that period little if any roots, and are propelled into their positions, as Dr. Wright has graphically described, by the pulsations of the blood current. The roots of the temporary incisors are located immediately in front of the crowns of the permanent incisors that are in process of eruption. If the crowns of the temporary incisors have been allowed to decay away, leaving the roots attached to the gum, these roots deflect the permanent incisors towards the interior of the mouth, and as there is not room in the circumscribed space within the circle of the temporary roots for the larger permanent teeth to erupt regularly, they are necessarily jumbled into very irregular positions, posterior to the line of correct occlusion.

This is a description of a process taking place under the eyes of all of us, but we do not all possess the skull of a child about six years of age to which we may refer to refresh our memory as to anatomical details.

Dr. Sim Wallace, of London, takes the ground that the new born infant should be nursed by the mother. As soon as the temporary teeth appear, the child should be fed with such nutriment as requires sturdy mastication before it can be swallowed. Dr. Wallace maintains that a child so fed will be far stronger and better able to resist the attack of any of the so-called infantile diseases and, therefore, far less likely to have them.

Included in this category of infantile diseases would be affections of the respiratory organs, beginning at the nose and including naso-pharynx, lungs, and all other mucous lined cavities.

This would eliminate a large proportion of the adenoid cases which are so prevalent, because, as Dr. Harry Campbell, of London, claims, the exercise thus given to the jaws and surrounding parts would so promote their growth and development, as to give room for all the teeth to be normally and regularly erupted, including the wisdom teeth. Irregularities in position of the teeth would then be eliminated in about the same proportion as the adenoid growths, which they so generally accompany.

Until young mothers can be made to realize the importance of feeding their children upon food that requires thorough mastication there will continue to be irregularities among the permanent teeth, that will be manifest to the trained eye while the temporary teeth are still in the mouth. The irregularities will become still more manifest when, at about the sixth year, the first permanent or principal molar makes its appearance.

The time to begin the correction of irregularity is as soon as it appears. Although the manifestations concerning irregularity that appear among the temporary teeth are doubtless familiar to every practitioner giving attention to orthodontia, I will beg leave to repeat the four most prominent of these manifestations.

First, then, the second temporary molars should articulate in the same manner that the principal or first permanent molars should, that is, the lower molar on each side should be one little cusp in advance of the upper molar, and the upper molar should rest astride of the outer or buccal row of cusps of the lower teeth. If this is not the position of these teeth the permanent teeth will be irregularly placed.

Second. The arches should be symmetrical. Lack of symmetry in the arches would indicate irregularity.

Third. At about the fifth year the temporary incisor teeth above and below should begin to separate from each other and stand apart in order to give room for the eruption of the larger permanent teeth beneath. If they do not so separate there will be a jumbled condition of the permanent incisors which can be shown by the X-Ray.

Fourth. At about the sixth year the permanent molars should make their appearance and should approach each other in such manner that the forward one of the three cusps on the buccal side of the lower molars shall articulate in advance of the two cusps of the first permanent molar above, and the upper molar should sit astride of the buccal row of cusps on the lower molars.

If any one of these conditions is lacking, irregularity of the permanent teeth is certain, and this irregularity may cause the eyes to deviate from the same level and be defective in vision, sometimes one eye will be smaller than the other.

One of the important reasons for beginning orthodontia as early as the fifth or sixth year is, that the regulating appliances, being adapted to the temporary teeth, will not be likely to cause decay in the permanent teeth.

Second. As the arches generally need to be enlarged, moving the temporary molars to their correct positions carries the crypts of the permanent bicuspids with them, so that when the roots of the bicuspids develop, they are already in correct position.

Third. As orthodontia aids development, and development does not go backward, there is less liability of a return to the original condition of irregularity.

Fourth. The greater ease with which the work is accomplished.

Fifth. The absence of pain, if all the preliminaries are properly attended to; and

Sixth. The actual work is accomplished in far less time and with far less disturbance to the physical well-being of the patient, and at far less expense.

I present for your consideration the case of a little girl together with a description of the apparatus which has done the work of assisting in her facial, nasal and dental development, and thus in the development of her vocal powers, her powers of enunciation and of mastication, and lastly, her power to charm by the beauty and correct balance of the features.

Little girl, 9 years old December, 1906. Markedly irregular lower incisors.

Insufficient spaces for the upper laterals, only one of which had yet begun to appear.

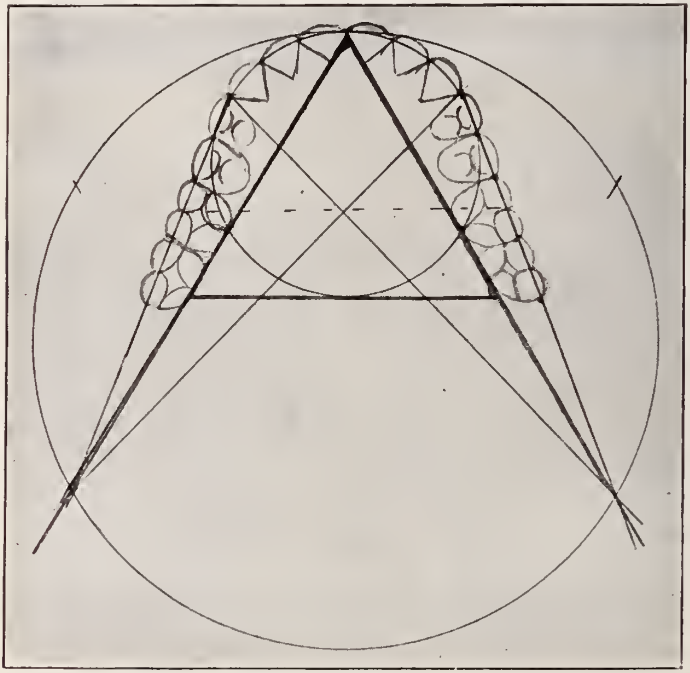

Fig. 8

Double posterior occlusion of the lower principal molars with the uppers.

Width of upper central incisors 34-100 of an inch. Doubling that and adding 24-100 in accordance with the tables of measurements given by Dr. Hawley, gives 92-100 as the radius of the circle for the six upper front teeth.

Upon this circle was constructed the dental arch for this mouth as it ought to be.

Dorothy L., 9, 12, '06. Radius sup arch, 92-100; radius inf. arch, 74-100; posterior dislocation, R. side, 22-100; posterior dislocation, L. side, 15-100. Corrected chart, January 1, 1907.

The arch of the child's teeth needed to be broadened 28-100 of an inch. So an upper and lower plaster model were sawed in two in the middle, they having been previously leveled and having had the incisors and cuspids removed.

Fig. 9. By setting these split models upon a piece of glass that had been liberally smeared with wax, the two separated halves of the models were held apart and in their proper positions, while the intervening spaces were filled with plaster, uniting the two halves. The upper model having been arranged and secured with plaster, the lower one was adjusted to it and also secured with plaster.

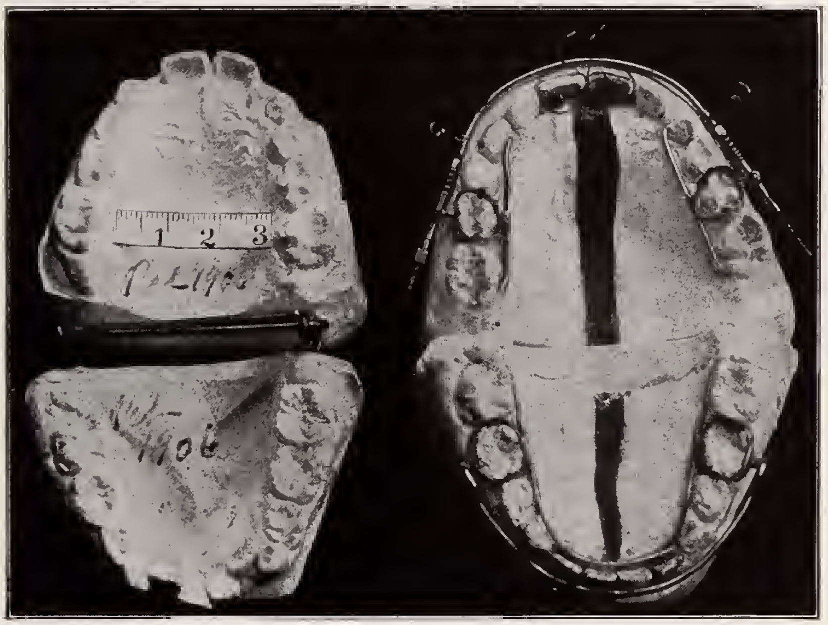

Fig. 9.

In arranging these models they should be put upon an articulator that is separable so as to be sure that the occlusion is correct, and should be so arranged that upper or lower model may be worked upon at pleasure.

This enables one to be sure that no part of the appliances interferes with any other part and that no part hurts the gum. The incisors and cuspids were then advanced to the positions they ought to occupy and were arranged into their regular arches, which was easily accomplished because of the extra width that had been given by drawing the two halves of the models apart.

Upon these reconstructed models of the upper and lower dental arches was manufactured the appliances that are placed before you.

For the bands and lingual wires of the upper arch I am indebted to Dr. Ainsworth. These were made for and attached to the second temporary molars and the lingual wires extended from the temporary cuspid to the permanent molars. Into the vertical tubes soldered to these bands is placed the swivel of a horizontal tube about one-half inch long. This swivel can either be riveted to the vertical tube or the stem can be made a little longer than the tube and a tiny hole be drilled through it from *front* to *rear* with a No. 00 burr through which a bit of ligature wire being passed, the swivel is made secure from coming out.

Into these horizontal swivel tubes is placed a wire arch resembling the one advocated by Dr. Angle, screw cut on both ends as far forward as the angle of the cuspids. This arch may be of gold and platinum clasp material, or of the German silver advocated by Dr. Ainsworth, made with 18% nickel. But the wire arch should be fully ¼-inch broader than the arch of the Hawley diagram of this mouth because of the tuberosity of the teeth, and because room is needed for the nuts and other appliances between the arch and the gum.

As this case needed the assitsance of the intermaxillary elastic bands, I caused two hooks to be made that drop down from 1-8 to 3-16 of an inch below the wire arch when in place, and that are placed upon the arch by means of tubes screw-cut on the inside to fit the arch on which they are to be used.

This permits the hooks to be placed at any point along the screw cut portion of the arch that may be desired, and permits of their being turned up under the lip out of the way during meal times, and when the teeth are being brushed. The force applied by the rubber bands attached to drop hooks is more nearly on a level with the wire arches, and is not so apt to pull off the appliances.

Next back of these hooks on each side was placed a small nut, and next back of these nuts on each side was placed a spiral spring of gold and platinum clasp wire, fitting very loosely to the arch bar and wound from right to left with considerable spaces between the spirals when wound.

By twisting these spirals from right to left, the nuts slide *with* the end of the spiral and not against it, and by having the spiral loosely twisted, with the wires quite widely apart, the liveliness of the spring is preserved.

These spiral springs are from ¼ to ¾ of an inch in length and lie between the horizontal tubes that receive the ends of the arch wire and the nuts that lie adjacent to the hooks.

Next back of the spirals are the two horizontal tubes into which the ends of the arch enter, and by which they are held steadily, and immediately back of these horizontal tubes, nearly at the extreme ends of the arch bar, are placed two nuts, one on each end of the arch wire.

The office of these nuts is to check the forward movement of the arch wire at the point which has been allotted to it, so that the distance between the posterior ends of the horizontal tubes and these posterior nuts on the arch wire is exactly the distance that it is desired to draw the anterior teeth forward.

The lower model was treated differently.

The six front teeth were arranged into their proper arch, as before described. Bands were made for the second temporary molars with vertical tubes for the Ainsworth arch, and with small lingual wires extending from the temporary cuspids to the permanent molars.

In addition to these, "finger springs," as described by Dr. Jackson, were made of gold and platinum clasp wire No. 30. These fine springs were carefully fitted to the corrected arch of lower teeth, and then a plaster impression of the molar bands in position in the mouth having been taken, a model was made, leaving the incisors detached. These incisors were subsequently rearranged ⅛ of an inch in advance of the arch that they should occupy, and the finger springs were soldered to the bands in that position. The object of this is to get a little more pressure than what would be given by the exact arch, inasmuch as this extra pressure will be needed to get the normal arch of teeth, and should it be a little in excess no harm will be done, while if we fall short of the full arch, we are pretty sure to get a retrograde movement when the pressure is taken off.

On the outer or labial side of the lower teeth, as corrected, an Ainsworth arch was very accurately fitted, so that it just touched the plaster teeth in their corrected positions. This arch when put in place on the actual teeth stood so far away from them as to be unpleasant to the lips, so another was made to begin with, and the correct one was laid aside to be used later on.

After the first or smaller arch wire had done its work of spreading the arch of the teeth this larger but more exact arch wire comes into play to complete the spreading and at the same time to prevent the lower incisors from moving too far forward, should the finger springs happen to have a little more resiliency than was calculated.

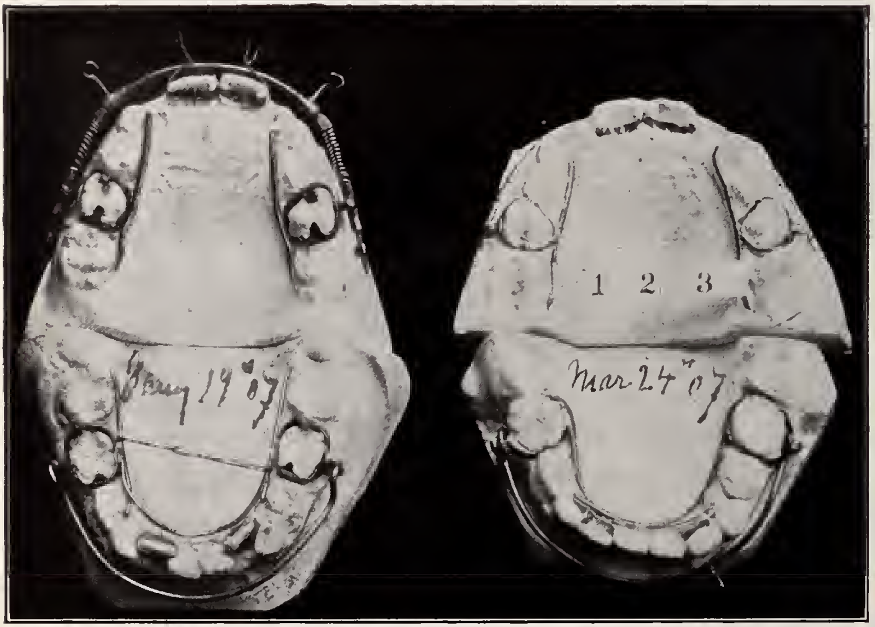

Fig. 10.

To each of the lower lateral incisors was cemented a little gold band with the spud projecting from the lingual side far enough to engage with the wire finger springs, and prevent them from sliding up on the lingual incline of the incisors.

My first impression of this case was taken October 5th, 1906. I then made sure that all the cavities of decay were carefully filled, including those in the temporary teeth, and on January 19, 1907, I placed wedges between the second temporary molars and the adjoining teeth, and my appliances for orthondontia were all constructed and ready to be applied.

On January 24th, I inserted the upper arch and on February 2nd the lower, and on these dates, therefore, pressure was first applied. The left inferior molar band, with its finger spring, having become loose, I made and replaced another with the lingual wire from cuspid to molar, but left off the finger spring. In eight weeks the gain that was made is represented by Fig. 10 and

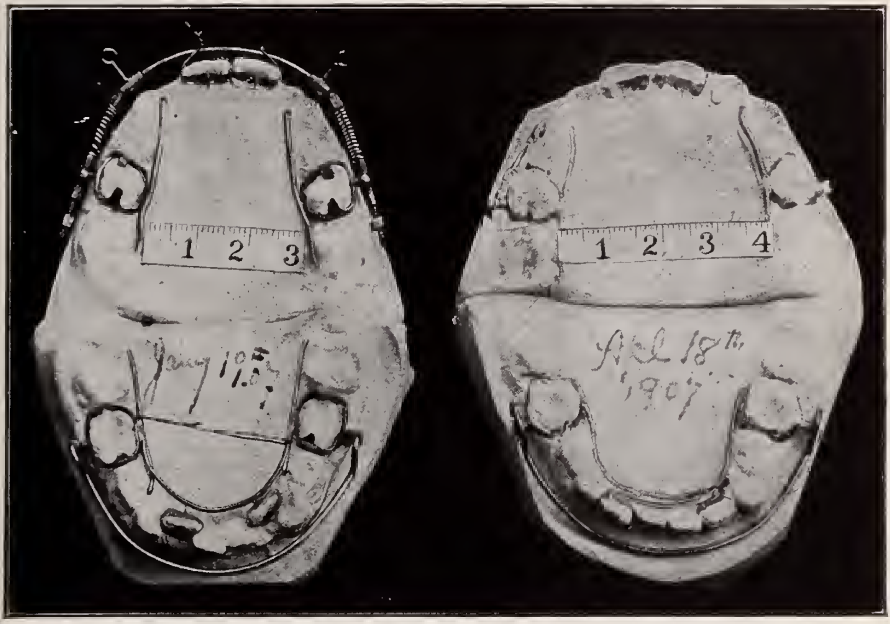

Fig. 11.

in twelve weeks by Fig. 11. There has been no pain from the very beginning of the operation, and the results are most encouraging.

As a retainer for *these* cases.

Having drawn a diagram of the upper arch of teeth as it should be, I drew also a *lower* arch, making the radius for the circle of the lower arch 18-100 inch less than the upper.

This gives the cutting edges of the lower incisors, and the buccal cusps of the molars, as nearly as is now possible. I then took a radius 10-100 inch less than the circle for the lower incisors, and from the same centre drew the segment of a circle that reached from cuspid to cuspid. A retaining wire bent to this smaller curve will rest against the lingual surfaces of the lower incisors at their broadest part, and by extending this line, and continuing it parallel with the lines of the lower arch already made, I had a diagram of the lingual sides of the lower teeth.

This diagram was as nearly perfect as we can now make, and to this diagram I bent my retainer.

As I once wished outside pressure on the lower incisors, I needed only to bend an outside wire arch to conform to the lines of the diagram of the upper teeth, which normally close just outside the lower, and I felt perfectly safe in exerting a firm retention by means of nuts at the screw ends of the arch wire after passing them through the horizontal swivel tubes attached to the bands on the molars. The ends of the outside retention arch so used were so fitted as to pass into the swivel tubes without lateral pressure. The ends of the lingual arch wire were passed through rather heavy platinum wire loops soldered to the bands on the lingual sides of the molars (an idea suggested by Dr. Ainsworth), and as I had obtained all the width that was needed, and had exerted all the torsion required to get the incisors in proper positions in the arch, I had only to ligate these two arches together with fine ligature wire between the incisors, and allow all the settling together that the widths of the teeth permitted; they could not drop inward, being held by the lingual arch, nor again become rotated, being held between two arches, the articulation of the principal molars was correct.

THE ACTION OF FRUIT ACIDS ON THE TEETH.*

BY JOSEPH HEAD, M. D., D. D. S., PHILADELPHIA, PA.

The causes of gradual dissolution of the teeth unaccompanied by decay has long been a cause of wonder and dismay to the pracising dentist.

In 1896 I published in the Dental Brief* some experiments showing the affects of grits on the teeth and proving conclusively that tooth powders even of plain chalk, were largely instrumental in cutting the well-known smooth grooves in the necks of teeth that so frequently appear from second molar to second molar. The fact that these grooves seldom, if ever, appeared on wisdom teeth seemed proof conclusive that they came almost entirely from the grit friction of the tooth brush, for the wisdom teeth receive but little tooth brush friction. I also pointed out that a brush used with plain water had no such deleterious effect. But there are certain cases where a general stripping of the entire enamel of the teeth appears even as far back as the grinding surfaces of the wisdom teeth with a steady reduction of the size of the teeth. This makes grit friction of the tooth brush as a complete explanation untenable; and since that time I have been experimenting with various acids in watery solutions and saliva solutions, to see if I could not reproduce out of the mouth, conditions similar to those found in the mouth. For instance, one part of lactic acid to 20,000 of water would cut tooth enamel with a thin colloidal smooth softening that could be polished off with the brush and chalk restoring to all appearances its normal surface. And when the tooth was replaced in the solution, the same smooth softening would recur. This decalcification occurred in a solution so weak that the acid present could not be detected by any test known to modern chemistry. When, however, a tooth was immersed in water solutions of from 1-5000 to 1-200 lactic acid, the corrosion was chalky, white and rough, such as ordinary tooth powder friction could not possibly remove and which did not in any way resemble the enamel dissolution under discussion. It was also noted that the cutting edges and grinding surfaces of the enamel were always the first to be decalcified, leading to the inference that enamel bruised even imperceptibly, is weakened in its power to resist acid corrosion.

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* Read before the Harvard Odontological Society, March 7th, 1908.

* See Dental Brief, Vol. XI., page 279.

I found that acid calcium phosphate and acid sodium phosphate solutions had a similar action, except that they made a smooth decalcification not only in 1-20000 solutions, but also made an equally smooth decalcification in strong solutions of 1-100 strength. Not to multiply my tests with the other acids to a tedious length, let me simply state, that while I found that 1-20000 solution of lactic acid and water would cut enamel, a solution of from 1-500 to 1-1000 of lactic acid and saliva would ordinarily not cut tooth enamel at all, although the acid saliva solution would turn blue litmus strongly red, showing that the saliva was really acid and not as might be claimed neutralized by any basic salts that might be present in the saliva. When a saliva solution of lactic acid was just able to cut the enamel of the tooth, it was curious to note that it started with a smooth, colorless softening that could be brushed off with chalk and reproduced with the same solution almost indefinitely, making a colorless dissolution most similar to the general erosions that sometimes appear in the mouth. And as the strength was increased, the smooth white decalcification, so often noted in the mouth, would appear and finally, when 1-200 lactic acid and saliva was reached the rough chalky decalcification of the ordinary rapid decay appeared, showing that the restraining action of the saliva on the decalcifying action of the acid had been completey overcome. Having now pointed out that saliva has, up to a certain point, a restraining influence on the decalcifying action of acids, let us proceed to the fruit acid tests. In each of these experiments a spot on the labial side of the teeth to be tested was ground with a stone and polished in order to see whether the original unground enamel has greater powers of resistence to decalcification than enamel that has been ground and polished. The first experiment was with red currant. Teeth were placed in the pure juice, in one-half currant juice and water, one-half currant juice and saliva, one-fifth currant juice and water and one-fifth currant juice and saliva. All of these were kept in a culture oven where a temperature of 98 deg. F. was maintained. At the end of ten minutes the teeth in the pure juice and in watery solutions were all slightly decalcified. Those in the saliva solutions were untouched. At the end of twenty minutes there was further decalcification of teeth in watery solutions, while the teeth in saliva solutions were only slightly corroded. The enamel cuticle (if we are to so designate the original unground surface) seemed to retard decalcification because the ground and polished spot on the enamel invariably was decalcified before the unground enamel. The saliva seemed to have a restraining action on decalcification inasmuch as the saliva solution made a decalcified surface that appeared perfectly normal until tested with the edge of a lancet, when it was shown to be cheesy rather than chalky. At the end of eighteen hours there was decided decalcification on all the teeth in all the solutions, the grinding surfaces of the teeth showing the most pronounced softening. When the tests were for over an hour or two, ether was added to prevent fermentation. According to the tests with red currant, the saliva has very little practical saving quality. The same tests were next carried out with red raspberry. It was found that the tooth placed in the pure solution was untouched at the end of an hour, while the teeth in one-half and one-fifth raspberry juice and water were perceptibly softened in fifteen minutes, and decidedly softened at the end of half an hour. At the end of eighteen hours, the enamel of the teeth in pure solution and one-half watery solution were reduced to a soft, chalky coating, while the tooth in the one-fifth raspberry juice and water was generally etched, especially on the grinding surface wher the enamel had received the blows of mastication. When a tooth was placed in one-half raspberry juice and saliva, in fifteen minutes the ground surface of enamel could be pared with a lancet and the cementum was softened, while the original unground enamel was unharmed. At the end of eighteen hours the enamel was generally decalcified. A tooth in a one-fifth raspberry and saliva solution was unharmed at the end of fifteen minutes, but at the end of eighteen hours was slightly decalcified and easily pared with a lancet, while rest of enamel was intact.

My next test was with ordinary gooseberry. The tooth placed in pure gooseberry juice at the end of ten minutes retained its gloss but could be pared with a lancet. At the end of fifteen minutes roughening began to appear and at the end of twenty minutes decided white decalcification was evident. The teeth placed in one-half gooseberry juice and water and in one-half gooseberry juice and saliva, at the end of three hours showed equal decalcification. The one-fifth gooseberry juice and saliva at the end of two hours showed signs of softening. In eighteen hours the teeth in the saliva solution and watery solutions were all badly decalcified, the saliva having very little retarding influence on the action of the gooseberry juice.

These same tests were made with purple plum, and not to go uselessly over the detail of the experiment, let me say that the plain juice softened the ground enamel in two hours but the unground surface was unharmed. But a tooth wrapped in a piece of the plum skin and moistened with juice in one and a half hours made white, chalky spots on the unground enamel. On the following day the tooth in pure juice had decalcified the enamel on the grinding surface and had cut the enamel deprived of its surface, but the rest of the enamel seemed unharmed.

A tooth placed in pure grape fruit juice at the end of fifteen minutes showed slight decalcification on bruised spot of the enamel. For two days it remained in the pure juice apparently without further harm, then the decalcification slowly began to spread under the outside enamel surface. But another series of experiments with saliva solutions of grape fruit and watery solutions of grape fruit showed at the end of twenty-four hours that the enamel and dentine were badly attacked as was the cementum. The outside enamel surface in these instances was of practically no protection.

The juice of the white oxheart cherry did not attack the enamel, but in nine days reduced the exposed dentin to a brown, leathery mass.

The pie cherry proved as destructive as the gooseberry. In ten minutes the enamel of the tooth placed in pure pie cherry juice, though glossy, could be pared with a lancet and in twenty minutes white decalcification appeared. With the pie cherry, at the end of two hours the saliva solutions appeared to decalcify even more rapidly than the watery solutions and the exposed dentin was badly softened at the end of two days.

Juice of ripe peach seemed harmless.

Orange juice did not hurt the unground enamel after five days immersion, but after that time, the smooth surface, soft to cut of a lancet appeared and in four days, white, chalky decalcification was apparent. But the cutting edges of the enamel showed signs of softening inside of fifteen minutes to half an hour, and in a day the exposed dentin was badly softened.

With lime juice the retarding action of the saliva was marked. Pure lime juice or even 1 to 6 lime juice and water in ten minutes decalcified tooth enamel slightly; in fifteen minutes white, chalky decalcification appeared and yet 1-6 lime juice and saliva did no cut a tooth inside of three days.

With pure lemon juice the enamel of a tooth was roughened in one minute. A 1-6 lemon juice and water solution cut the enamel generally in five minutes and in an hour and a half made deep white decalcification, while a parallel test with lemon juice and saliva preserved the tooth for over a day. With lime and lemon juice the saliva has a marked retarding action on decalcification.

Solutions with sweetened and unsweetened rhubarb, each one-half rhubarb and one-half saliva were tested and at the end of five minutes decalcification began and continued. One part of unsweetened rhubarb to four parts of saliva at the end of an hour did not touch the enamel, but at the end of two hours a small, white spot appeared. A tooth placed on one part of sweetened rhubarb and four parts of saliva cut the tooth enamel in ten minutes and badly in an hour. This shows that sweetened stewed rhubarb will cut a tooth more quickly than the unsweetened. It also shows that saliva ordinarily will not prevent the decalcifying action of rhubarb. The sugar in the rhubarb *may* turn to lactic acid which would account for the more violent action of the sweetened over the unsweetened.

A tooth wet with saliva and plunged into a sweet strawberry will lose its gloss in half an hour. This decalcification can readily be polished off with a napkin so that the tooth looks as smooth as before. The watery solutions and saliva solutions, one-half juice and one-half water or saliva, in eighteen hours decalcify the tooth enamel cruelly. The saliva with strawberry is of little protection.

In summing these tests I would emphasize the following points: When fruit acids are being eaten, any feeling of the teeth being slightly roughened is a sure sign that decalcification is in progress. With the exception of lemon and lime all the acids mentioned that cut the teeth, are not seriously restrained by the saliva. Where the saliva does seriously inhibit decalcification, it is in a solution of one to five, or one to six, so that the decalcifying action of the acid can work from the pure state down to a one to five or one to six dilution with saliva. This is especially true where the fruit is bitten. It is also to be noted that the greatest effect on the teeth occurs at the grinding surface which receives the blows of mastication or on a ground surface where the outside of the enamel has been removed.

Might not fruit acid or other acids be responsible for the rapid wearing down of the grinding surface of those patients who in early middle life grind their teeth down almost level with the gum?

If the acid first attacks the spot of enamel that has been bruised or battered by the snapping together of the teeth during occlusion, may not this be another argument against the old-fashioned method of hammering gold on the enamel edge of cavities? May not the bruises given by the mallet make microscopic flaws for the acid that otherwise might never have been able to gain its first entrance into the molecular substance of the enamel? And finally, in the light of the rapid dissolution of the teeth caused by fruit acids, may not many cases of general dissolution of the enamel be caused simply by such fruit products? It is true that acid secretions of the mouth caused by faulty metabolism may be responsible for general tooth wasting, but since fruit acids can cause such rapid dissolution, should we not first eliminate the very simple causes of powder friction and acid food erosion before we plunge into the fascinating and almost unfathomable field of general bio-chemical reaction?

WHAT SHALL WE DO?*

BY C. BOARDMAN BURNHAM, D. M. D., BEVERLY, MASS.

Porcelain work, gold work, orthodontia, crown and bridge work, inlay work, dental surgery, extracting, and all the different branches of dentistry, are practised to a greater or less extent by every dentist. Some of our more favored brothers are able to specialize and to do practically nothing else. Take orthodontia, for instance—this specialist sees all kinds of mouths and all the different conditions and combinations of teeth, from the simple to the most complex. He has his own patients and he has patients sent to him by his fellow practitioners, but nearly all come relative to his subject, orthodontia. He makes his examinations, his models, his appliances, his recommendations and in time, is able, in a large percentage of cases, to get the desired results. Likewise, the porcelain man, the crown and bridge man, and other specialists do their work to the best of their ability, get the best results possible and are able to get their pay for their labor.

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* Read before the Harvard Odontological Society, March 19th, 1908.

We can all do these things to a certain extent, but, gentlemen, did you ever realize the difficulties under which some of us have to work? Did you ever realize how different are the conditions existing between the man who specializes and the general practitioner, especially where one is situated in a manufacturing city or a city that is the center for surroundings towns? Did you ever realize that it is this man who sees practically every condition imaginable, not only conditions relating to one branch, but conditions, both simple and complex, relating to nearly every branch. He must be a specialist, so to speak, in every branch. Certain conditions are presented to him and he is able to accomplish desired and satisfactory results, both to himself and to his patient. On the other hand, there are conditions presented to him where these results cannot be accomplished in the way that he would wish, and to most of us I am afraid that this last condition is in the majority. Why cannot he accomplish them? Because, the greater number of his patients cannot afford to pay for the proper work and the dentist does not feel that he can spend his time and material unless he is recompensed. He wishes to accomplish results, but often times he has to get the best results, all things being considered. I was talking only recently to a man who specializes and I told him about some of the conditions presented to me. He said, "I would hardly know what to do in such a case."

These are some of the difficulties presented to a—let me call him for the sake of comparison—a country dentist, and he is so amazed, so horrified, so dumbfounded, at these conditions that he is lost when asked for an answer and can only say, What shall I do? What is going to be the best for this patient? At times he dreads to make recommendations, knowing full well that it is out of his patient's reach, but he must, if he is a conscientious man, do something and that something must be for the best, and I tell you gentlemen, that it is no easy job, for that is exactly what I have to contend with in my practice in Beverly, Mass., a city of about 18,000, a manufacturing city and a city where the greater percentage of the people have received very little dental education, and where the results of this lack of education is shown, not only in their own mouths, but more especially in the mouths of their children.

From a few statistics we know the condition of children's teeth in some of our public schools, where it has been shown that practically 50 per cent. of the pupils examined had *absolutely* poor teeth. Some of these children come to us for their dentistry; they present irregularities from the simple to the most complex. They present teeth at all stages of decay. These children represent every temperament, every condition of health, from the robust child to the weak anemic child, and we must govern ourselves, in a measure, by the situation of their parents, as to whether our work shall be extensive or not. In other words, our work must be within their reach.

For ten years I have been simply amazed at the condition of the most important tooth in the mouth, the first or six year molar, as is presented to us by children. Amazed to find, at the age of 6, 7, 8, or later, this molar a total wreck; one of them, two of them, three and even all of them simply gone, and most of them gone beyond the power of saving, and causing so much trouble to the litle ones that the young child is in an extremely nervous condition. He or she has been losing sleep, cannot eat, and has been losing strength; has fallen behind in his or her school work and they come to us for relief. What shall we do? Gentlemen, a child at the age of 6, 7, or 8 requires a great deal of dental attention and they require the best of advice. Just think how much damage could be accomplished by poor advice and how much good work could be accomplished by good advice at this age. Shall we, at the age of 6, 7, 8, and 9, extract this most valuable tooth and probably furnish our little patient with relief, but at the same time deprive them of a most valuable asset? Shall we attempt to save them? Shall we carry them through a long process of treatment, knowing full well the large amount of labor and expense involved? If we feel that we should extract this tooth, at what age should we do it? Think of the horrible results obtained by too early extraction and extraction made too late. This must be considered very carefully. Think how many six year molars have been extracted after the second or twelve year molar had erupted and the results of the same. When, if this was inevitable and was done at the right time, what fairly good results could have been obtained. How a lower left and an upper right molar had been extracted and the results obtained. How that condition could have been improved upon by a little thought.

Dr. Bogue says, "To you who have studied occlusion, I hardly need say that I regard the replacement and retention of the first molars into their proper and normal positions in relation to each other, should they be found developing out of place at 5½ to 7 years of age, just as essential as the replacement of the head of the femur into the acetabulum, before 5 years of age, should it be found dislocated." Gentlemen, what shall we do if the head of the femur or even the femur itself is gone, and yet, gentlemen, we have to advise when this condition is present.

You all know the thousand and one conditions that we find this tooth in. We all know the results obtained if it is lost, from results simple to results most complex. Our patient's worldly as well as physical condition must to a certain extent influence or determine our policy and therefore, I say, that one fast rule cannot be laid down relative to any one subject unless all conditions are alike.

We are called upon in the country to do a lot of extracing, and we have all of us seen the terrible conditions resulting from improper work. We have all made serious mistakes, but if we know our mistakes, we should, if we cannot rectify them, at least try and not make them again.

I had a case the other day brought to me by a High School teacher who had been amazed at conditions presented to her by some of the girls. This teacher had hardly given the teeth serious thought, and yet she was teaching physical culture. This patient was about 16 years of age and had been to a dentist and he had recommended total extraction. Just think of it, total extraction at 16 or 17 years of age. She told her teacher and her teacher possessed with common sense, realized the girl's condition, and had taken the trouble to have another examination made by some other dentist. This I was called upon to do, and recommended about sixteen fillings, one crown and one extraction. The child is just getting over the "growing fast" period, and from now on should improve. The teeth should grow harder and, with care, should last this girl many years.

This subject of extraction is of vital importance, and I think if we should see some of the results obtained by our own work, as well as those obtained by other practitioners, that it would teach us a good lesson. If we think it absolutely wrong to extract we should stick to our position and not change our minds under any consideration.

The following are a few of some of the typical cases presented for advice:

We have a child about 6 years of age with the first molars apparently all gone. They come to us for extraction. Shall we do it? To save these teeth would require a great deal of treatment and pain and expense. What shall we do?

We have the young girl presented to us. Her parents were only in moderate circumstances. Her first molars were wrecks, so to speak. Should we have extracted at 7, 8 or 9 years of age, and gotten this fairly good result, or should we have waited and extracted later? Should we have extracted one or two or three or was it wise to extract all four?

Another, this child has lost a lower left and upper right six-year molar, sometime after 12 years of age, probably. Could that dentist have improved upon his work?

Another, a child of 12, weak, nervous and easily frightened. Presented for the first time by his mother. Six-year molars in poor condition requiring a lot of work. Shall we attempt to fill them? Shall we extract them? The age is not right and the results would not be very good. What shall we do?

These are only a few conditions—there are thousands of others.

We should give all these cases presented to us our most careful consideration, no matter how small. We must think of the results we would obtain if we should do certain things. We must save teeth if possible and if we cannot obtain the results we would wish we must seek to obtain the best considering the conditions. We must educate the children, the parent, through the school, through the home, through ourselves. We must do that which is right.

Gentlemen, this short paper has simply been practically on the condition of one tooth, as is presented to us. Think of the hundreds of conditions that are presented not only relative to first molars but relative to every branch of dentistry and what a tremendous subject this is, what a discussion could be made and how impossible it is for a man to even attempt to talk on such a subject. We could use hour after hour, for every man present could present something new for consideration. I must acknowledge my inability to even make a start on such a work, but this has been on my mind for a long time and I simply had to speak of it, and if I have even caused one of you to think, to reflect, and in the future to act with a little more discretion, I shall have, perhaps, done some good. Gentlemen, what shall we do?

FORMATION OF CALCIFIED CENTERS WITHIN THE DENTAL PULP—TREATMENT—CONSTRUCTION OF PERMANENT SPLINTS AND BRIDGES.*

BY DR. NELSON T. SHIELDS, OF NEW YORK CITY.

This subject calls for earnest thought from the eruption of the teeth to old age. For the present we will omit the care of deciduous teeth and consider the first molar with all of its importance to man. With normal conditions this important tooth should remain throughout the three score and ten years without the presence of caries, but should be ground shorter by mastication as age advances. (The same argument will be upheld with all of the thirty-two permanent teeth.) At the time the occlusial enamel has been worn through by mastication and the dentine exposed, immediately the dentinal fibrilli become irritated, which causes the pulp to throw out odontoblasts and a calcified mass is formed within the pulp directly beneath the point where the dentine has become exposed. This thickening process will continue until old age without the pulps becoming exposed, and this person in normal condition will die with thirty-two sound teeth. From this beautiful and normal function of the dental pulp my paper is founded.

Unfortunately in this strenuous age we do not live in accordance with our physical strength.

Healthy parents are blessed with children with normal blood by inheritance, and here if I would digress from this paper at all I would suggest care in the choosing of wives and husbands. Their salivary glands secrete saliva with the normal amount of alkinity and complete neutralization of the acids of the mouth results, which means absence of caries of the teeth. Sunshine and the use of natural foods, such as meats, fish, vegetables, nuts and fruits promote our physical welfare together with thorough prophylaxis. These healthful conditions are enumerated for the reason that the departure from any one of them means drafts on nature which will be paid with interest. In violation of some healthful condition a child is presented with a decayed molar involving the grinding or occlusal surface only. The moment decay appears on any surface a calcified mass has already been formed within the pulp chamber, and beneath the grinding surface is the safest place that they can form for the reason that the blood has only to circulate in the dentinal fibrilli beyond the calcification, no part of the pulp having been cut off, and yet after the decay has been removed and the fissures leading into the cavity prepared with a round bur, we should use gold in the most compatible form to fill the cavity. Non-cohesive gold in strips folded in mechanical wedges (or cylinders if the cavity is large enough), with cohesive gold malleted into the folds is in my hands the most compatible permanent filling that can be introduced. All forms of crystal gold should be avoided unless the cavity is first filled with cement and the crystal gold worked into the cement before it sets, should the crystal gold come in contact with the dentine it will cause unnecessary irritation in the dentinal fibrilli which will cause an unnecessary large amount of calcification within the pulp chamber. Later in life this patient may be presented with an anterior approximal cavity in the same molar, the calcification will now become more serious for the reason that the blood will have to circulate by it from the anterior root. The extension of this cavity for the prevention of further decay should be just as little as will enable the operator to contour the approximal surface with gold and prevent the tooth structure from touching the approximating tooth, especially when removal of healthy dentine is necessary. In very large cavities of this character gold inlays can be used to advantage, but unless the work is too great a hardship to the patient nothing is better than a well introduced gold filling without the sacrifice of good tooth tissue. A large slot cut through good tooth structure at the grinding surface is unnecessary for anchorage. The most compatible filling for larger approximal and grinding cavities is non-cohesive cylinders at the cervical margin, and contouring with cohesive foil, or else the use of cement with crystal gold worked into it at the cervical margin and interior portion, freeing the very cervical margin and contouring with cohesive gold. By not cutting the great slot at the grinding surface you save the dentine, and undue exposure of the dentinal fibrilli, the same strength can be obtained with the slightest undercut, and the irritation in the pulp wonderfully lessened. These calcifications have been beautifully illustrated by Dr. Edward C. Kirk and by Dr. G. V. Black incidentally in illustrating their work with the lantern slides.

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* Read before the American Academy of Dental Science, Boston, Mass., April 1, 1908.

Still later in life a patient is liable to require a filling at the cervico-buccal of a molar or the cervical portion of any other tooth which should be the most dangerous to the pulp of them all, for the reason that the calcified mass from the irritation of the decay and afterward from the filling will almost dam the blood supply from a point beyond which it has to nourish, and the irritation frequently causes many pulp stones or calcified masses to form, even to the entire calcification of the pulp, or strangulation before that. When teeth are filled as described this cervical cavity is not likely to occur if advice in regard to food and outdoor exercise is given and followed. Only a few words in regard to the deciduous teeth. To save the pulp is the main object. This can best be accomplished with gutta percha in approximal cavities, using cement and crystal gold in occlusial cavities with hand pressure and quick manipulation. Whenever the strain of the day can be counteracted by the rest at night all will be well, but to the contrarywise should the strain not be overcome, the smallest blood vessel being in the teeth and gums, we can look for the result of strain in the mouth. The nervous system is the most wonderful part of creation, and if we tax it with too much sickness or too much pleasure, too much exercise or the lack of it or with any other strain whatsoever more than the night's rest will overcome, if continued the blood cannot circulate properly in the small blood vessels in the teeth and gums, and the congestion will cause a gradual loss of the alveolar process and subsequently recession of the gums. Exposed roots of teeth will be the consequence.

From the wonderful function of the pulp to protect itself from the exposed root be it ever so small an exposure, calcified masses will form and later congestion of the pulp will follow—the tooth will loosen and can be taken out with your fingers if neglected. The first cause for alarm is the smallest exposure of the root—remove all calculi from the teeth and prescribe alkaline mouth wash and restore the gums to healthy condition. Urge thorough prophylaxis and learn the strain, there will positively be a strain, and advise accordingly. A little later if the root becomes more exposed and sensitiveness bothersome or the root more exposed and the tooth loosening, without hesitation open into the pulp with new burs and true manipulation without pain, and extirpate the pulp with cocaine; after one treatment the root usually can be thoroughly cleansed mechanically and filled to the apex with non-cohesive gold and the canal with oxychloride of zinc. There will be no more blood in that tooth to congest and if the case comes to you in time as stated above, the tooth will remain tight without the assistance of the approximating teeth. Whenever the roots of teeth are very much exposed and pus pockets present, here the cause is in the gums and alveolar process being the result of strain, or whatever the roots are very much exposed and sensitive without pus pockets, here the cause is absence of good circulation in the teeth on account of calcified masses within the pulp. In both cases extirpate the pulps as above described and likewise treat and fill the roots and extirpate the pulps from as many teeth adjoining that are not so affected, in order that in your judgment a suitable permanent splint can be constructed that will save the teeth tightly and the cleanliness of the mouth perfect.

In constructing a splint for the inferior front teeth, take a plaster impression of the lingual surfaces, pour your model and define the teeth, make a metal die, burnish and swage pure gold thickness 34 American guage, separate the gold belonging to each tooth and wax the pivot in position through the pure gold and invest in solder, place it again in position in the mouth and trim the gold and burnish the gold to the tooth perfectly—remove without pulling the gold from the approximal surface of the root where you have just burnished, in order that the gold will fit exactly when you replace it—invest again and stiffen with 22K solder. When all are completed, adjust each one in position and obtain a plaster impression and invest in plaster and marble dust; place a piece of half round clasp metal between each stay, leaving a space at the cervical portion and solder with 20K solder. When this splint is finished no gold will be visible and the teeth can be as thoroughly cleansed as though no splint was present; in fact you can keep the teeth cleaner than before. In the construction of bicuspid and molar stays the approximal walls must be made straight as far as the gold extends and if there is no approximal cavity a small cavity must be made to join the grinding surface cavity where the pulp was extirpated. Take a gutta percha impression of the cavity, pour a plaster model, make metal die and burnish gold perfectly. In making the pivot bend the platinum and iridium pivot metal in order that it will extend through the approximal cavity and into the cavity of the approximating bicuspid or molar, or over the lingual surface of your cuspid stay. By means of this extension you can get the greatest amount of strength within the smallest space and leave cleansing space between the teeth. In the construction of splints and bridges one is liable not to involve enough teeth. All splints and bridges should be constructed upon permanent lines. As many teeth on both sides of the loose teeth should be involved as in the operator's judgment will be necessary for permanent results. When incisors and bicuspids on same jaw are loose, I would advise involving every tooth on that jaw and be thankful you had the teeth to restore the jaw to normal usefulness. The scientific manipulation of porcelaine facings for artistic permanent bridgework is a tax to any careful operator and is not only worthy of the attention of the best men in our profession, but should not under any consideration be sent out to a laboratory. Contour study, fine adaptation of gold and porcelaine without the slightest checking, good articulation on occlusal surfaces without a manifestation of gold is most difficult but gratifying.

DISCUSSION.

BY DR. ANDREWS.

Mr. President—

I wish to impress upon the gentlemen present the very great importance of this process of pulp calcification, as it takes place within the pulp cavity, and as it takes place within the substance of the pulp tissue. It occurs more frequently than we suspect, and is the cause of much of the obscure neuralgic pain that we are called upon to treat. I also wish, in a courteous way, to correct several errors in our essayist's histology. The pulp does not "throw out odontoblasts"; there is a layer always present; ready for emergencies. He also states that when decay appears upon any surface, calcification takes place within the pulp. This is misleading, for when the enamel decays, and before the dentine is reached, this change does not take place. It is only when the decay reaches the dentine that the change of tissue within the pulp cavity takes place. Whenever there is an exposure of the dentine, there is irritation produced in the outer layer of cells—the odontoblasts—of the pulp. Following this, minute salts of lime are sent into the canaliculi of the dentine, and these canals are partially filled with a substance resembling calcoglobulin, while the tissue of the pulp opposite the exposure of the dentine begins to calcify, and a portion of the pulp becomes calcified. This is dentine of repair, or secondary dentine. If these masses of new formed dentine are caused by cavities at the neck of the tooth, the ingrowing mass of newly formed dentine of repair may impinge upon the pulp tissue of the pulp and cause trouble by irritating the nerves of the pulp tissue by its pressure. This dentine of repair is called true secondary dentine. There are other forms of pulp calcifications caused by over-stimulation, which do not come from the odontoblasts but from the connective tissue of the pulp, and in this way, more often than you suppose, neuralgias are caused by the pressure of these upon the nerve tissue of the pulp. Dr. Cooke has investigated this matter and has found a great many within the pulp itself, these differing, from the idea of calcification, as given out in the paper, in that there is no adhesion to the teeth wall. This calcification within the pulp itself is the formation of asteo-dentine (more of a pathological condition) and is not the true secondary dentine which is a dentine of repair.

I have used for a number of years, as many of you know, Ascher's Artificial Enamel, and in some cases have regretted using it near the pulp. It is an active irritant. In deep cavities I have used either gutta percha or some of the oxy-phosphatae beneath the cement, but am now using a balsam boiled down with chloroform which gives absolute protection against the acid of the cement. Ascher's and likewise some other cements in close relation to the pulp, act so rapidly on it, that the repair process cannot keep pace, and as a result the pulp dies.

There are other causes of these growths. Part way down the root masses grow within the pulp canal and are known as dental excrescences. The cause of these I have never been able to find out, although it is evident that they come from the odontoblasts. They are really to be classed as odontomes, or dental tumors.

I think that all this teaches us to be careful and fill the minute cavities, and to make a thorough examination of all fissures. We do not begin our work early enough. I had an old man come to me with an aching tooth on which only a mere pit of decay appeared, sufficient to catch the probe. Upon applying a chisel, practically the whole of the crown crumbled away; the dentine was completely decalcified, and this is by no means a rare case.

In regard to strangulation of the pulp by repair processes going on a result of buccal margin decay, it may be possible that this occurs, and it probably does without doubt occur, but the cases are very rare.

Dr. Merriam.—Some years ago I was anxious to get some speciment of human and other teeth for comparison. I obtained some from the Walrus and others, and although they were without pulps, there were evidences of the spaces such as Dr. Andrews has described. However, none of the conditions noted seemed to be the result of irritation.

Dr. Squires.—I think the essayist described very artistically the way to connect the teeth by splints. I take issue with him in regard to the statement that they could be cleaned as well as before.

I would like to say a word about preparing the teeth before putting on the splint. I always take out the loose teeth, thoroughly cleanse them and put them back as no ordinary dentist, and I class myself as such, is able to scrape off some forms of tartar and polish the roots in the mouth. On the upper teeth I take off a little of the end of the root, but not on the lower, or they would settle too much. The results of this procedure are very good, and I find that the implanted teeth are much firmer than those not treated in this way.

Dr. Andrews.—There is one point further and that is the advisability of taking out the pulp where the tissue is diseased. Where the periosteal tissue is in a pathological state the pulp is also sure to be more or less affected, and I always take out the pulp in such cases as in my judgment demand it. I cannot fill canals successfully with gold.

Dr. Cooke.—What would you expect to find in the old man's teeth where the teeth had not decayed throughout life?

Dr. Shields.—Normal pulps. Much smaller, but normal.

Dr. Cooke.—Suppose he knocked out one tooth, the other thirty-one being sound. You intend to crown an adjacent tooth and put in a dummy. Would you kill the pulp?

Dr. Shields.—Yes.

Dr. Cooke.—You get a disturbance in all cases where you put on crowns without taking out the pulp?

Dr. Shields.—I find that it usually occurs, and that if you do not take out the pulp you will have to go back and do so sooner or later, and why not do it in the first place.

Dr. Cooke—My experience with nodules goes back a great many years. In my father's office there was a drawer containing probably several quarts of teeth, some of them probably had been there for twenty years. When I came to Boston it occurred to me to crack them open; I did so, and noted down their condition, whether filled, decayed, or whole, and also noted pulp stones. I examined five thousand with a small glass and kept an accurate record. One thousand forty had secondary deposits, that is 20 per cent. The percentage in molars I found to be about 30 to 33 per cent. These pulp stones did not always occur where there was decay, and in filled teeth about half contained calcifications. In my practice I never have found a case, with accurate diagnosis, where the primary cause was the secondary deposits. I do not take out a pulp for the sake of taking it out where I am putting on a crown. If there is a good, sound root with no encroachment on the pulp, I cut it down, put on a cap and band (any tooth) and grind a facing so that it can be shod to the cutting edge without showing gold. There is no post, and no secondary troubles. If the pulp has been infected I take it out. I had a case of a girl where I filled forty-five cavities, and as time went on I put on some crowns. That was twenty years ago, and so far as I know, the teeth are alive to this day.

I do not think that these methods will produce irritation, and if you take the same number of teeth and crack them open you will find the same condition as I have. I question the ability of a man to fill a canal to the apex, and I call it a foolish proposition to go at the pulp for the sake of making more trouble.

Dr. Merriam.—Take note of the use of cocaine with pulp stones present.

Dr. G. T. Baker.—The idea of destroying the pulp I do not call good practice. Further, I had rather use the term extirpate than destroy, as destroy implies the use of a drug. As for filling a pulp canal to the apex with gold, I think it is the most absurd thing I ever heard of.

Dr. Cooke.—I want to endorse the filling of small cavities Dr. Ottolengui wrote a paper on the filling of initial cavities with gold. I use amalgam as a temporary filling. I don't like cement as it has not sufficient lasting qualities in case the patient should be gone some time. Temporary teeth I fill as soon as I find a hole in them.

The real thing in dentistry is to stop decay, not the beautiful, artistic bridgework, and so on; and it is the dentist's business to find the small cavities (a hard thing to do sometimes) and to fill them so that they will not re-decay.

Dr. Merriam.—Some years ago a patient came to me with a great deal of pain along the anterior part of the mouth. The gums were pink and natural. I suggested rheumatism. Finally, one-fourth inch below the gum margin, I saw three or four little black grains. I cut down on these, without disturbing the gum margin, and removed them. There was no communication between these and the mouth so far as I could see.

Dr. Werner.—The man who will do the chemistry of the mouth by proper mastication will be free from the secondary conditions which have been spoken of. I do not always think it necessary for the man who chews his food to have the initial cavities filled, for when I was nineteen I had a number of fissure discolorations. These were not filled, and there is no sign of them to-day.

Dr. Ainsworth.—Dr. Cooke's remarks suggest an idea to me. He speaks of using amalgam for initial cavities. I prefer to use tin as it is more easily worked and has a better preservative action.

Dr. Shields.—In replying to Dr. Andrews as regards crystal gold: Wherever we have sensation we have nerves, arteries, and veins. Crystal gold has numerous fine points which irritate the dentinal fibrille. If you take such a filling out of the tooth you will find the cavity very sensitive, which is not the case with other forms of gold.

The idea of this paper is the treatment of initial decay, and in this I could not have a stronger advocate than Dr. Andrews.

Dr. Merriam asked me to speak of the use of cocaine. I find no difficulty where there are pulp stones. With sufficient pressure the cocaine can be forced beyond the deposit.

In regard to Dr. Squires' remarks: If a tooth is so bad that it has to be taken out to be cleaned, I think it best to be left out as bridgework is better than a tooth which is liable to be loose.

Dr. Cooke has investigated five thousand teeth, cause of extraction unknown. He also speaks of the old man who dies with all his teeth intact. Even in his case the very fact that you touch the sensatory dentine with something abnormal, such as a stone, you will cause calcification. If the pulp is taken out in the first place there will be no trouble, if the root filling is surgically performed.

Dr. Baker spoke of the absurdity of filling roots with gold. I take a small strip of gold foil the width of a pin shaft, and use a flattened Donaldson bristle for my plugger. I make a plugger for each case on which I am working, and by first measuring the canal I can determine that the first piece of gold has been pushed to the apex.

After hermetically sealing the apex with gold the canal should be filled with soft chloride of zinc.

This Society has unconsciously endorsed my entire paper. I thank you for your discussion.

A NEW FORM OF DRILL.*

BY F. S. BELYEA, BROOKLINE, MASS.

Every once in a while the spirit of prophecy takes hold of someone and prompts him to remark that the age of mechanical improvement in Dentistry is at an end. It is my pleasure to present to you to-night and through you to the profession, a piece of evidence that improvements in our mechanical devices are still possible.

One of the oldest of all human implements is the drill, and it would seem that a tool so ancient and multiform could not, at this late date, be made the subject of invention. I have here, however, a drill for which I am bold enough to claim improvements sufficiently original in their character to amount to invention, as the term invention is interpreted by the patent offices of the world.

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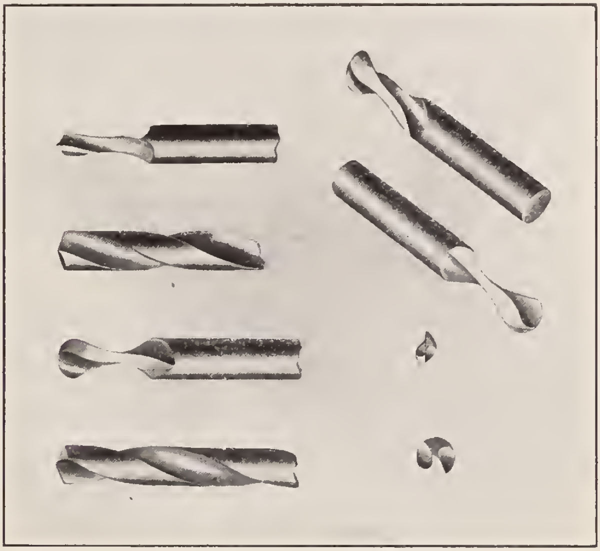
*Read before the Metropolitan District Society, Boston, April 27, 1908.

The large model, made from a twist drill (its nearest relative), and which I pass around, explains better than any words of mine the form and nature of the improvement. It will cut with almost equal facility in any direction—forward, backward, sidewise; it will not clog, wet or dry; it accomplishes its work with the smoothness of a bur and will cut dentine amalgam, etc., with about four times the speed of a bur. It will not, however, be found suitable for drilling enamel.



The points in this drill to which I wish to call your attention most particularly are this: All angles have been eliminated from its outline so that from shank to tip and from tip to shank again the cutting blade always presents a curved surface. Having thus but one cutting blade it drills with the minimum of friction and the maximum of speed. This absence of angles also accounts for its great steadiness in comparison with all other drills except the bur.

F. S. Belyea.

REPORT OF COMMITTEE ON ALLOYS.

New York, June 2nd, 1908.

Your committee on alloys respectfully reports as follows: Analysis of six of the popular proprietary alloys used for dental amalgams have been obtained from Dr. P. S. Burns, of the Massachusetts Institute of Technology, whose report is herewith presented.

May 7, 1908.

Analysis of alloys for The New York Institute of Stomatology:

	% SILVER	% TIN	% COPPER	% ZINC	% GOLD
1 Twentieth Century	67.03	27.13	4.87	1.10	——
2 True Dentalloy	65.91	27.13	5.21	1.52	——
3. Standard Alloy	53.55	35.03	2.76	——	8.82
4. Fellowship Alloy	67.45	26.80	5.73	0.55	——
5. Odontographic Alloy	66.87	26.48	6.21	trace	0.28
6. C. Ash. Sons Co. (C. A. S.) Alloy	66.54	27.16	5.02	0.90	——

We would call attention to the fact that the composition of four of these alloys is practically the same. The slight variation in the proportions of their constituents may make a perceptible difference in their working and setting qualities, but the cost of material for their manufacture is practically the same. Yet some of these secret formula products are sold at double the price of others.

We think it safe to assume that the practical identity of these compounds has been known to each of their manufacturers since their introduction, and we regard it a lesson worthy of consideration, that the makers of the highest priced compounds have enjoyed the benefit of such extra profit without any revelation of the similarity of composition being made by those making practically the same alloy for one-half the price. It would seem that the maintenance of that complaisant acceptance of secret formula products which has generally characterized the dental body, is so valuable an asset to the purveyors of supplies that they make common cause in "standing pat" on this point, notwithstanding the competition that exists to market their products.

Another of these alloys has, as reported, a composition almost identical with the average of the four mentioned above, excepting that about one-quarter of a part of gold in one hundred parts of alloy, is substituted for the small constituent of zinc in the other similar alloys.

The composition of the last alloy to which we have our attention directed by these analysis is decidedly different from the other five in the proportion of constituents: containing less silver and less copper, more tin, and nearly nine parts of gold to the hundred parts of the compound. This alloy we belive has been upon the market many years, long before Dr. Black published the reports of his studies of this subject. But it is worthy of note in regard to these alloys whose analyses report such marked similarity that for each one of them we think it has been claimed that they are "made after Dr. Black's method." The method, we understand, refers to manipulation in the process of making, and Dr. Black is on record over his signature, on a circular relating to one of these alloys, stating that, "Any one who knows the methods which I have developed, and has made a sufficient study of the metals to enable him to make alloys understandingly, needs no formulae."

GEO. S. ALLAN,
ARTHUR. H. MERRITT,
J. MORGAN HOWE.

REPORT OF COMMITTEE TO CONSIDER ANALYSIS OF ALLOYS.

To the Board of Directors of the New York Institute of Stomatology:

Your committee have considered the subject of alloys as proprietary secret compounds, and while we have some doubt about the expediency of making exhaustive tests of their physical properties, we do feel justified in recommending, that chemical analysis be made of a half-dozen of the most popular proprietary dental alloys, for the purpose of informing dentists generally just what material is being furnished for their use in this line. The pamphlet of the American Medical Association on "The Propaganda for reform in Proprietary Medicines," which we have all received, sets forth in clear terms the ethical considerations involved in the relation of physicians to the proprietary medicines they are solicited to use, and the need that exists for making public the constituents of remedies. We think there is need for cultivating among dentists also, the desire to know what materials they are using. Secrecy in the composition of any material we use, is objectionable. The ingredients may be changed at any time, or their proportions varied to suit the manufacturer, and all the time they have the opportunity to set an excessive price, out of proportion to the intrinsic value of the compound. At the meeting of the New York State Dental Society in 1906, Dr. G. V. Black, in discussing the subject of alloys as furnished by dental manufacturers, said "The habit manufacturers have of holding formulae and plans of making alloys secret has become a bar to progress," and again he said, "Whenever alloy makers know that their alloys will certainly be subjected to definite tests * * * a sufficient number will furnish alloys that will stand that test." We think that Dr. Black is right in this matter, and that even if we should do nothing further, it will be worth while to spend what is required to furnish for our proceedings the formulae of the alloys made and sold by the leading manufacturers and the price for which each could be made and sold by some competent metalurgist not in the dental trade.

Your committee make the recommendation that at least the analyses above suggested be made. Afterwards, if thought best, we can make other tests of alloys, but we recommend beginning with analyses.

Respectfully submitted,

GEO. S. ALLAN,
ARTHUR H. MERRITT,
J. MORGAN HOWE,
Committee.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held Tuesday evening, March 3rd, 1908, at the Academy of Medicine, No. 17 West 43rd street.

The President, Dr. Chas. O. Kimball, occupied the chair.

The minutes of the last meeting were read and approved.

The President.—At a recent business meeting of the Institute, a committee of three was appointed to suggest methods for investigating certain alloys, with a view to publishing the results, and to do in our circle somewhat the same work which the American Medical Association has been doing in drugs—verifying and publishing the work of the manufacturers. The report was made to the Board of Directors formally, and by them asked to be read before the whole society. The Secretary will now read the report of that committee.

The President.—This evening we are fortunate in having with us one of our younger confreres in a distant city—Toronto, Canada—who has been devoting his entire time to the treatment of pyorrhea with marked success. Our attention has been called to him through papers he has read which were published in the Dominion journals, and through work he has done, and we have invited him here to give us an account of his methods. To-morrow, at 3:30, at the office of Dr. Merritt, he will give a clinical demonstration of his method.

I have the pleasure of introducing Dr. Andrew J. McDonagh, who will read his paper, entitled: "Pyorrhea: Its Cause and Cure."

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*For Dr. McDonagh's paper see page 118.

The President.—Gentlemen, Dr. McDonagh's valuable paper is now before you, and Dr. R. G. Hutchinson, Jr., has been invited by the Executive Committee to open the discussion.

Dr. R. G. Hutchinson, Jr.—The presentation before this society of the subject under discussion to-night is one of the signs of the times. The prominence given recently to the treatment of pyorrhea and what is inseparable from it, namely, oral prophylaxis, by many of our leading dental societies is significant of an awakening among members of our profession to the fact that oral hygiene depends more upon such lines of work than was formerly considered to be the case.

So much of our work as dentists may be classed as mechanical in its nature that the average practitioner has naturally ignored what to me seems the most important duty which we owe to our patients, and that is the recognition of pathological conditions in the oral cavity and the restoration of health to the tissues surrounding the teeth. Without such care the mere repairing and replacement of defective teeth is of comparatively little value to the patient.

It has been said that more teeth are lost through pyorrhea than through all other causes combined. This I believe to be true, and if it is true it devolves upon every man who calls himself a dental surgeon to use every means within his power to save teeth so affected. So strong is my conviction on this point, that for several years I have devoted nearly all of my time to this work.

I am glad that Dr. McDonagh has taken the stand he has in regard to the practical side of the question being of more importance to us than the question of etiology. We must, of course, determine the cause of a disease, if possible, in order to definitely arrive at a conclusion in regard to treatment, but our scientists have so far agreed to disagree on many points and have actually proved very little concerning the cause of pyrrohea.

This has created the impression in the minds of many that it is useless to attempt to save teeth so affected.

We know that this is not the case. Those of us who have devoted a great deal of our time to the practical treatment of this disease know that whether or not we correctly understand the etiology we are able to save the teeth and restore health to the tissues supporting them. Some contend that in spite of that fact we have not established a cure and there seems to be little hope that we can agree on this point. Be that as it may, we have accomplished what we aimed to do as dental surgeons.

Like Dr. McDonagh, my opinions are based on observation of results obtained in clinical work.

The condition first described by the essayist, in which there is practically no deposit, but a wasting of the tissues, I would not regard as pyorrhea. At the last meeting of the Odontological Society, Dr. Julio Endleman read a paper in which he described such a condition as due to senility. This I think is a most reasonable conclusion.

The name pyorrhea is indicative of the presence of pus and

I believe that we should consider only such conditions as are accompanied by a flow of pus to be pyorrhea. In the great majority of cases inflammatory conditions of the gums, if allowed to go on without treatment, will result in pyorrhea and we might well consider them as an incipient form of the disease.

I hearitly agree with the essayist in his belief that pyorrhea is the result of bacterial actions, due to anaemic or hyperemic pericementum, and I would add also of the surrounding tissues.

It is my belief that in the majority of cases this condition is the direct result of either mechanical of chemical injury to the tissues and that suppuration is the natural consequence when the tissues have reached a point where malnutrition makes them an easy prey to infection. This may or may not be preceded by calcareous deposits, but my experience has been that with rare exceptions such deposits exist before suppuration begins, and are a potent factor in the case.

I do not deny that there is a constitutional element present, but that that constitutional element constitutes pyorrhea and that pyorrhea cannot be cured without its elimination does not appeal to my reason.

As far as it is possible for me to judge of the treatment employed by the essayist, by reading his paper, I cannot agree with him on some points. The roots must, of course, be scaled. Success is out of the question otherwise, but in my opinion this should be done with as little laceration or destruction as possible. No good can be accomplished by scraping the roots except for the removal of deposits and that in reality is not scraping but carefully cleaning off the deposits. Incidentally, the half-dead and effete matter will be removed by the instruments from the socket and flushed out by the attendant hemorrhage. If care is exercised and the work of removal performed thoroughly, I fail to see why any cauterization should be necessary, any more than after a general surgical operation.

Many have assumed such treatment to be necessary, but how many have tried the experiment of doing without it? During the entire period in which I have treated pyorrhea I have never used any form of treatment other than the scaling and flushing with antiseptics. The results have proved eminently satisfactory.

Experience has proven to me that if the deposits and all other foreign and dead matter have been thoroughly removed by instrumentation and flushing the sockets with an antiseptic, the tissues will heal and resume their normal tone if kept clean subsequently.

Of course there are exceptions where, in spite of any treatment short of extraction, a cure is impossible, but it is my opinion that better results can be obtained without the use of acids than with them and in less time.

As regards the rheumatic or gouty diathesis, there can be no doubt of its having a distinct bearing on pyorrhea in some cases, but it seems to me reasonable to believe that the part played by such systematic conditions has more to do with furnishing the material of which the deposits are formed than with causing their localization on the roots of teeth. Unless some local irritation brings about the precipitation of the urates we have no deposits.

This I believe to be true in regard to pericemental abscess. I do not know just how many such cases have come before me for treatment, but there have been quite a large number all told and in every case deposits have been present, and entirely independent of all connection with the gingival margin.

During periods of acute activity in the rheumatic diathesis there is a greater tendency toward inflammation, but I believe that if the teeth are thoroughly cleaned at frequent intervals, by the dentist, there will be no recurrence of the pyorrhea.

I am glad that Dr. McDonagh has mentioned the different forms of irritation which cause pyorrhea. Many cases might be prevented by an appreciation of the danger from rough handling of ligatures, separators, etc.

The proper instruction of the patient as to the use of the toothbrush, floss, etc., is of the utmost importance if we would preserve a healthy condition of the mouth. The brushing should be done thoroughly, but not too hard. I would advocate using in addition to the usual vertical motion, a lateral sweep, as by this action the cervical margins of the teeth and gums are more effectually cleaned than without it.

As regards the use of the anaesthetic spoken of, it seems to me hardly worth while to take so much risk as is involved by its use. A topical application of a weak solution of cocaine, or Dentatone, (a saturated solution of chloretone in essential oils) will anesthetize the tissues sufficiently to make the operation bearable, and I believe it to be advisable to have a certain amount of sensation to guide us in our operation. As the Doctor has aptly said, the best way to avoid giving pain is by using good instruments and knowing how.

It seems incredible to me that there can be any union between a root denuded of pericementum and the surrounding tissues, but the essayist is speaking from an experience covering many years of practice, so I would not presume to deny that it may be so.

Dr. J. B. Locherty.—We can see at once by the manner in which the essayist has handled the subject that he has gone into it very deeply from a practical standpoint, and no doubt he has attained excellent results. After all, that is what we are here for—to attain results.

Dr. McDonagh states some things with which we naturally take issue. He speaks of certain systematic conditions in which the heart beats, or the shocks, driving an excessive flow of blood to the pericemental tissues, would cause pyorrhea. That might be so under certain conditions, but I think it doubtful.

Dr. Talbot and others who have spoken a great deal in regard to auto-intoxication, point out the bearing that the lime salts and the different toxic materials in the blood have upon the pericemental tissue, in regard to loosening teeth. It is the over-burdening of the tissues with the toxic materials, and with the excessive lime salts, that frequently causes pyorrhea, and not any especial heart beat or agitation. Pyorrhea can come from lack of blood nutrition to the pericemental tissue, as is exemplified in the cases of senility and the over-trained athlete. Mal-occlusion is another great cause; also irregularity of the teeth, the irritation of the tissues caused by lodgment of foreign matter, ligatures and ill-fitting crowns and bridges.

As to brushing, that is a subject that has been greatly discussed, and there is no question but that a small brush, even small enough to cover but one tooth at a time, is better than a large one. I think we all agree as to the motion—up on the lower, and down on the upper—brushing the gums also—and that some simple powder and antiseptic wash should be used.

Regarding the use of an anaesthetic in treating pyorrhea, a solution of cocaine and adrenalin—Parke, Davis & Co.—put up in tablets, so one may have a freshly mixed solution, is probably the best, but very rarely has one to resort to the use of cocaine in the treatment of pyorrhea, as I have found in my practice. It is more or less of a poison and in tissues that are already highly charged with toxic material its use is attended with danger.

I have found the use of escharotics and stimulants after the removal of the calcareous deposits to be, in many cases, highly beneficial. They stimulate the surrounding tissues, and probably dissolve some portions that the instruments do not remove.

I have used with great success a 50% solution of sulphuric acid, immediately following it, however, with a solution of bicarbonate of soda.

I have never tried using the extracted teeth, and treating them as the essayist says. That might be an excellent thing to do. I have generally found that porcelain teeth answered very satisfactorily, and much better, probably, than the teeth themselves, if they had been partly absorbed. I use in all treatments of pyorrhea the high pressure syringe with antiseptic solutions. To wash out the sockets thoroughly is an important part of the treatment. After all is said and done in regard to pyorrhea, we must remember that cleanliness is the first important factor, and after the local treatment is finished it must be followed by such constitutional treatment as may be necessary or we will not secure the results which we wish to obtain.

Dr. Henry W. Gillett.—The prevention of pyorrhea for the coming generation is even more important than the question we are constantly dealing with: the cure of already established pyorrhea, and I think some of us have had hopes that the prophylaxis treatment, as it has been called in recent years, would solve that problem. Whether it ever will, is a question that the future must settle.

To come to the subject matter of the paper itself: In my opinion, the best phrasing with regard to the causation of pyorrhea, that I have seen, is in a paper by Dr. Hartsell, which was read at the last meeting of the National Association. He takes the ground that any cause which shall lead to inflammation of the overlying soft tissues may be followed by absorption of the hard tissues underneath, and when that process is once started, it will be automatically maintained and continued by reason of the conditions existing there under the gum.

The idea which Dr. Hartsell puts forward is something like this—that as soon as the peridental membrane begins to die, we have a putrefying mass of tissue there, even though small in quantity. When that breaks up and disappears, a roughened, pitted surface remains which is so thoroughly infected that it is in itself a sufficient irritant to continue the process. That seems to me a reasonable idea, and following out that thought, I would, in my treatment, go further in the removal of tissue than I understand the essayist or Dr. Hutchinson to go. I would not only remove the deposit, and all dead tissue, but I would endeavor to plane an entirely smooth surface on that cementum, and I thoroughly believe that the careful following out of that procedure will bring about more prompt results than if that smoothing of the surface is omitted.

Personally, I have not considered strong acids or strong escharotics desirable. The essayist has put before us an idea which is to me new, and which, if well-founded, is a very important one—namely: that by the use of these strong mineral acids and strong escharotics, he induces a condition which results in a renewed union of the gum tissue and the tooth.

I say candidly, the idea seems to me preposterous, but that is no argument, provided Dr. McDonagh can show us that he does bring about that result. I am "from Missouri" on that point—if Dr. McDonagh understands that slang—I want to be shown.

The further statement, if I understood him, that he obtains union between the gum tissue and the teeth from which the pulps and pericementum have been removed, seems to me a dream. I cannot understand it at all—in fact, it does not seem to me that Dr. McDonagh is warranted in making such a statement unless he can show us the microscopic slides which will substantiate it. I can understand perfectly how a replanted tooth may have the tissue close about it in such a way that it shall be impossible to pass a probe between that tooth and the surrounding tissue without drawing blood; but the fact that blood is drawn is not sufficient warrant for the assumption that there is union between the gum and that pulpless tooth. An assumption necessitating a modification of our ideas of the histology of the tooth needs more than clinical evidence to support it.

With Dr. Hutchinson, I disagree with the classification in which Dr. McDonagh includes what I would call atrophy rather than pyorrhea; but that is not a material point. The practical point at the present time is that when that condition of atrophy has advanced to a state calling for operative interference, I would proceed in precisely the same way as I would for pyorrhea. I would carefully remove all dead membranes and plane a smooth surface on those teeth, and get rid of all irritation so far as it was possible, observing, of course, care in protecting all live and healthy tissue. That is quite as important in my estimation in the treatment of pyorrhea as it is to remove the necrosed tissue.

We speak of curing pyorrhea. It seems to me that many of us have a different understanding of what is meant by the cure of pyorrhea. I find in talking with some men that they do not consider pyorrhea cured unless they are able to make loosened teeth firm and to restore the tissue pretty nearly to normal lines.

It does not seem to me that restoration of lost tissue is included in the definition of the cure of pyorrhea. What I mean by curing it is stopping the active progress of the disease, the secretion of pus and restoring such tissue as is left to a healthy condition.

The only places in which I expect restoration of the bony tissue, is where the pocket extends down inside of the bony tissue in which there is a portion of the alveolus standing free with a pocket between it and the root. In cases of that sort, where the diseased condition is cured, and a smooth condition induced, I do expect restoration of the bony tissue up to the level of the portion of the bone which is standing; but not above it.

I will not attempt to speak of half the interesting things Dr. McDonagh's paper suggests to me. One of the most valuable and interesting points is his reference to the teaching of our patients how to care for their own mouths. I congratulate him hearitly on the stand he takes in dealing with his own practice—in refusing his services to patients who will not carry out his instructions in that respect. I feel sure that a large percentage of pyorrhea is caused by uncleanliness, that it is simply a filth disease, and that its prevention hinges just upon that question of the public being taught how to keep their mouths clean from childhood. Not only in my pyorrhea cases, but in all cases so far as opportunity serves, I undertake to show my patients how to use the toothbrush and I refer to this partly for the sake of making a suggestion in addition to what Dr. McDonagh has stated in regard to teaching the patient the proper movement for the brush. I do not use the brush in my own mouth as an illustration, but after giving a talk on the right form of brush, and the way to use it, (I am glad to agree most heartily with Dr. McDonagh that the Prophylactic brush is the worst toothbrush on the market with the endorsement of the profession) I take a fresh brush which has been soaking for a few moments in a glass of water, put it in their mouths and make the movements in their mouths. I tell them to bear in mind that they are brushing the gums, not the teeth. If they will brush the gums well, the teeth will take care of themselves. I Would like Dr. McDonagh to make a little clearer what he means by his small brush on the front teeth. He speaks of a brush with four rows. I have seen brushes in which the bristles were arranged in a circle—just a tubular tuft of bristles on the end. His reference was not quite clear to me.

Dr. Hutchinson.—I want to correct a misapprehension on the part of Dr. Gillett in regard to a statement I made. I did not intend to convey the idea that I did not believe in making the parts perfectly smooth. I think it is of paramount importance that any roughness should be removed. Many times a cure is prevented by not having those parts in a burnished or polished state. What I referred to was removing the cementum for the purpose of exposing the ends of the canaliculi. I do not believe in removing healthy tissue in the manner Dr. McDonagh advocates, but would invariably remove all rough or irritating tissue—not to present a roughened surface for attachment, but on the contrary an absolutely smooth surface. One of the most important features, I believe, is that the teeth after operation should be most thoroughly and carefully polished, especially at the cervix, just under the free margin of the gum.

Dr. Gillett.—In order to make myself clear, I will refer to three slides which Dr. Hartsell showed under the microscope at the clinic of the National Association. One of them showed a surface which had been scaled with the ordinary instrument, showing the marks of the instrument. The second showed a surface which had been planed to as smooth a surface as could be obtained with the instrument. The third slide showed the surface of cementum from which the pericementum had been detached, and it was covered with minute pits. It is that sort of surface which Dr. Hartsell speaks of in his statement of his theory as being sufficient to account for the maintenance of the irritation, simply because those pits had been once filled with putrefying material, and were necessarily infected with filth bacteria.

My attention is called to the fact that I was not quite clear in my statement with regard to my thought of the possibility of re-attachment of tissue to a pulpless tooth. I had largely in mind the teeth Dr. McDonagh mentioned. I cannot conceive of the possibility of bringing about a renewed attachment of gum tissue to cementum, where the pericementum has been removed.

The President.—May I speak of one point I have noticed? In a very bad case of pyorrhea treated last January—one of the worst I ever saw—I had occasion to remove two upper incisors, lateral and central, and scrape their roots as thoroughly as I could. They were both elongated. I did not shorten the teeth, but to make sure they were sterilized, I boiled them till the gutta percha protruded through the apex of the root, and had to be removed. I then deepened the sockets, replanted the teeth, and they were ligated in place. Soon they became quite firm. They are still supported by a splint, but about a month after they were replanted I had occasion to change the splint, and found one of the teeth, especially, was strongly resistant to traction, and it seemed to me that there had been positive union. This, too, after the surface of the root had been scraped as thoroughly as it could be. The subject appeals to all of us, and we cannot give it too careful attention.

Dr. McDonagh.—There have been so many points brought up, and well taken, that I will not have time to refer to them all.

I will take the last question first—the attachment of teeth denuded of pericementum. Dr. Gillett has given me an impossible proposition in our part of the country. I could not get slides from a living patient. I do not know how to prepare them, and do not think it is possible. I did not say as a matter of theory that those teeth attach, but stated that it was not necessary for them to do so in order to be firmly held, and I gave as an example the gold root, which I would say most emphatically had not attached to the natural tissue. I did say, however, that as far as we can see in some cases they do attach.

A dentist from a town in Western Ontario told me at our last convention, (I replanted a case for a patient of his last year, and the splint came loose), that he thought as the root had been scraped, he would take out the whole thing, expecting the root which was replanted to come out easily. He found in pulling out the appliance that so much of the gum tissue came out with the replanted tooth he had difficulty in getting it to its place again. If that is atmospheric pressure, it is very strong!

If blood is drawn, I think it is pretty good proof that there is some attachment.

When the President said he boiled the teeth, I was very much surprised, for by so doing he must certainly have killed all the animal matter that was in the teeth. Therefore the tissue which attached to those roots later on must have grown into the tooth from the tissues, not out of it. That is the only explanaion I can see for what sometimes does happen.

I cannot, of course, exhibit my patients here. At home it is not difficult at all. There are numbers of them, and I did fortunately have one at a recent clinic in this city.

I defy Dr. Gillett or anybody else to make the surface at the apex of a root perfectly plane, unless he does it out of the mouth. I have hundreds of cases sent to me from the best dentists in Ontario. They watch the patients and as far as I can tell I do not have 4% of failures. If that is true, and I do not plane the roots, is it necessary to plane them? If the teeth attach, as your President has said, and as I have seen, is it reasonable to say we must plane the teeth? It is a very difficult thing to do, and requires much time and trouble. Using hydro chloric acid, or trichloracetic acid, the microbes are killed and the irritating little pits and points are removed. If there are little pits where the pericementum was, and the gum tissue grows into them, is it not better to have them there, provided the pits are aseptic, and if the proper medication be used they will be aseptic.

Dr. Hutchinson spoke of seldom having to treat the teeth over again. Using the method I do, I rarely have to treat a tooth twice. Treat it once and leave it alone. The tissue should not be disturbed when they start to attach. If the tissues do not attach, the work has not been properly done—I mean taking it for granted that the patient has any recuperative power. I had a patient whom I thought I would not succeed with, because she was not in a healthy condition, and although sores on the rest of her body did not heal readily, they did in her mouth.

Atrophy and pyorrhea: In my paper, I said I used the term "pyorrhea." I understand that pyorrhea alveolaris means pus flowing from the alveoli, but there are many diseases which we have to treat where there is no preceptible pus, and we call them "pyorrhea" because we have no better name. I described the treatment to you, because it is all-important.

Regarding pyorrhea as a filth disease, (as it was designated by Dr. Gillett), if I had nothing to do but treat that kind of "pyorrhea," I would certainly go out of the business.

I was asked about the small brush. I care not what form of small brush is used. I take a brush, and cut off the bristles, as I want them. I do not use antiseptic washes, because we have experimented with them in Toronto, and find they are not antiseptic. For instance, with Listerine, we could not kill any of the bacteria. The only thing we have any success with is a preparation of formaldehyde. 4% formaldehyde we found would destroy in a few minutes the bacteria in those cases. In cases of syphilitic mouth, I prescribed formaldehyde in some form. Euformal is as handy as any other, and efficient.

I claim that taking the definition of a cure Dr. Gillett gave us, pyorrhea can be cured in the majority of cases, that is, the local condition. The constitutional treatment is always essential in well-developed cases, and it is well to use that treatment afterwards, but not necessarily for the cure of the disease.

There was a very good point brought up by Dr. Locherty regarding natural teeth and porcelain teeth. The only advantage, as Dr. Locherty said, is when a natural tooth is replanted the color is right, and it will change color with the other teeth.

I do not find it necessary to wash out the pocket. When I use the trichloracetic acid, there is an eschar formed to the end of the root. I get the astringent action, and I get healthy granulations to the end of the pocket, if I put the trichloracetic acid down there. I agree with the gentleman who said he did not think it was necessary to use acids or escharotics if two freshened surfaces are obtained, but in pyorrhea often the pockets, or parts of them, are inaccessible to the instrument, and a small amount of infection left there will soon create disturbance, so that the trichloracetic acid acts in more ways than one. It gives a freshened surface, new granulations result, and it is a positive disinfectant. No micro-organism can live in trichloracetic acid for a moment.

I do not use nervocidin more than once a week; but there are cases where it is a great help.

There is one point on which I want to take issue with Dr. Hutchinson, and that is with regard to brushing the teeth. I may be a crank, but I do not think we should use the sweep he speaks of. Brushing backwards and forwards, the bristles spread out, and they shove down under the free margin of the gum. We should bring the bristles so they sweep past that dangerous point and come down in the proper way on the teeth.

As to removing healthy tissue, Dr. Hutchinson said he did not believe in removing it. I do not, either, unnecessarily; but where the pericementum is cut off from its attachment and its sustenance and its nourishment, it very soon becomes diseased tissue; then most assuredly I say remove it.

There is a medicine being used by Dr. Buckley which is probably as powerful as the sulphuric acid, and a little less difficult to handle, and that is phenol sulphonic acid. If Dr. Hutchinson will use that, I think he will find it beneficial. It has the same effect, and it can be carried more easily to the place desired.

The President.—I believe that in bone grafting, the pieces of bone are often boiled before they are used. That was my reason for doing it, although the boiling probably did destroy any vitality that was left there.

When a man has practised dentistry forty years he does not consider that a man practising twenty years is old, so I was quite justified in speaking of Dr. McDonagh as one of the younger blood, and I think he has maintained his position here. He has brought us something new and good, and we thank him sincerely and honestly.

Dr. Merritt moved a rising vote of thanks to the essayist, which was unanimously carried.

Adjournment.

AMERICAN ACADEMY OF DENTAL SCIENCE.

A regular meeting of the American Academy of Dental Science was held at Young's Hotel, Boston, Mass., March 4th, 1908.

The President, Dr. George C. Ainsworth, presided.

The President.—It is our good fortune to have with us tonight a gentleman who has probably given more study to the regulation of children's teeth at a tender age than any one else; at an age when most of us have thought it impracticable for various reasons. I am convinced he will be able to show us tonight that he has many points in favor of such a procedure.

I have the pleasure of introducing Dr. Edward A. Bogue, of New York City.

Dr. E. A. Bogue.—Having been asked to say a few words regarding the prevention of dental caries, I will refer to some of the influences exerted by irregular teeth.

Irregularities cause spaces between the teeth at their necks, difficult and sometimes impossible to clean.

The occlusion of irregular teeth causes the sides of cusps to strike each other. As all who have examined the occlusion of human teeth know, they do not generally strike evenly and that brings certain teeth too closely together, while others are too much separated and in such cases we find pyorrhea, especially in the region of the second upper molars. When we have considered carefully, I think we shall come to the conclusion that proper feeding at the earliest possible age is a thing which we, as dental surgeons, should look into and impart what knowledge we can, to the young mother. It has impressed itself more and more upon me of late that food has more to do with dental decay, as well as dental irregularity, than any other one thing. And in saying "food," I mean the character of the food, which the infant begins to eat during its early possession of deciduous teeth, and from that time on.

Dr. Sim. Wallace and Mr. Joseph Turner agree that there is no disease that attacks the human frame so preventable as dental caries.

Now, gentlemen, I will show a few lantern slides which I think may illustrate some of the ideas which I beg leave to convey before I begin to read my paper.

My friend, Dr. Smith, has often brought up the subject of judicious extraction, and I hope that I may have the pleasure of presenting a case of judicious extraction at my own hands. (For Dr. Bogue's paper see page 130.)

I sometimes feel, when I take time to explain these little matters, that an apology is due for being somewhat prosy. The effort has been for the last five or six years to seize everything from every source that may promptly do this work with ease and simplicity, in the hope that we may, before a great while, be able to adapt some appliance to that large class of little children in the hospitals who are in such need. I went to the Post-Graduate Hospital, in pursuit of information, and there were forty or fifty children, every one of them a dental wreck. I felt it would be well if we could devote a portion of our time to inventing some kind of an apparatus which would relieve these difficulties; I think the time has come when physicians, instead of giving their time to treating diseases, will more and more give their time to prevention. I cut a slip from the paper this afternoon concerning vivisection. The writer is Frederick A. Ayer, of Boston. He says:

"The study and practice of health will put disease out of fashion. Physicians wait for the arrival of disease, and then are vigorous in the cure of it. Let them prescribe health, and disease will not arrive."

There is a good deal more truth in that than poetry.

The President.—Gentlemen, Dr. Bogue's paper is before you for discussion.

Dr. Banfield.—In a case of irregularity of a child's mouth, say six or eight years of age, where the sixth year morals seem to be somewhat wide apart, but the rest of the teeth crowded more or less, is it Dr. Bogue's custom to spread the teeth to the form of the diagram that he makes of that arch?

The President.—Dr. Bogue will allow the questions to accumulate and answer them at the end of the discussion.

Dr. E. C. Briggs.—I shall enter into no encomiums of the speaker this evening. We all know what he has done in this line, and when time, the leveller of all things, sums up, I think Dr. Bogue will be placed as a star of the first magnitude.

Dr. Bogue has to-night brought to our attention the treatment of irregularities in young children, and I think it strikes a chord in the minds of all progressive orthodontists. I am sure that of late years I have felt the importance of doing the regulating at a much earlier age than I formerly did. The routine with me used to be to put the children off till they had their permanent teeth in position.

The question of extraction, upon which we all know Dr. Bogue's position, has appealed to me, and where formerly I used to think well of removing a bicuspid or two, I can say truly that I have always regretted such extraction. I have a number of cases where the result is fairly satisfactory, but I do think that in all those cases I would have had a better result had I not extracted. One method of regulating I think ought to be brought a little more to our attention, and that is the Jackson method. I do not believe that those who have not probed and practised it, realize how much can be done with it, and how simply and easily for the patient. I will close by saying that I think the regulation of children's teeth in the first dentition is of the greatest importance.

Dr. Horace L. Howe.—I wish to express my appreciation of Dr. Bogue's paper, in which he has brought out some very important features regarding irregular teeth and mal-occlusion.

He touches upon the process of mastication, and I think we must all agree with his quotations from Dr. Wallace and Mr. Turner, that if the temporary teeth are used they must increase the circle of the next teeth.

I think we must agree with him also in regard to the importance of nasal breathing. If the nose is used it will keep the nose extended, and thus have the normal nose with the normal mouth.

Early correction must be the same with the teeth as with any other part of the body. If we have a case of bow-legs, it is much easier to correct them when a person is young than after they get older.

I have used Johnson & Johnson's oxide of zinc sticking-plaster for closing the lips at night and causing nasal breathing, using two strips of the plaster to hold the lips together. I have a case that has been under treatment in that way nine months, and the upper lip has developed in a surprising way. It is now brought down over the teeth, and the child breathes through the nose. If the plaster had not been used I think the teeth would have been protruding.

Dr. George T. Baker.—In Dr. Bogue's paper to-night, there were many points teeming with interest. One in particular where the essayist spoke of putting appliances on the temporary teeth to spread the temporary molars, and so force out the bicuspids. I have here the skull of a Maori which illustrates that. It shows the temporary teeth in position and the bicuspids growing down between the roots. It is the skull of a native of the New Zealand Islands, and shows a most irregular condition of the teeth similar to that we so often see in the mouths of our patients. This in a wild race of people who live in the mountains and enjoy natural life—outdoors all the time. The sentence which attracted my attention most in the paper was this: "No part of the appliance interferes with any other part, and no part hurts the gum." To my mind that illustrates a fundamental principle. We often say there should be no pain in regulating teeth,—and there should not. What is the great cause of pain? Always because of the appliance pressing on soft tissues. I contend that an appliance perfectly adapted so as to bring out the best results must not touch the soft tissues. The anchorage and the pressure must be on the teeth. With regard to the scientific part of the paper, I have no exceptions to take, but I do take exceptions to the mechanical construction of the appliance that Dr. Bogue has shown us. Now, the appliance did do remarkable work, was well adapted, and it was probably the best thing that could be used in that particular case. But it seems to me it is an advance in the wrong direction, for the reason that it is too complicated. It seems to me that a simpler appliance would have accomplished the same results. That is the only criticism I have to make on the whole paper.

Dr. H. C. Merriam.—I remember with satisfaction the lectures delivered by Dr. Bogue at Harvard in 1873 or 1874, and the lines of study I took up soon after graduating. My practice is not such that I can follow closely all the lines we have talked about to-night, and yet I never lost interest in them. I think very much of that interest is due to the early impulses I received from our guest when I was a student.

I think if we should master the principles of biology, and especially the first volume of Herbert Spencer's biology, it would be well, as some of the passages seem to have been written for dentists. He says, for instance, "There never was a strong muscle without a strong attachment." And then he speaks of the co-relation and co-ordination of functions. He speaks of the strength required of the Irish elk to carry the skull, the strength of the vertebrae, the strength of the back and the strength of the muscles of the leg. Some of those chapters might have fitted right into the guest's paper to-night and I think they show how closely and how scientifically he has worked along those lines. While we call it dentistry, it is based on the principles of biology.

Dr. Arthur P. Rogers.—Dr. Bogue is always interesting, and what he says may always be put down as authority. The thing that pleased me to-night as much as anything else in the paper, was his willingness to gather from all around. It is the true genius who is willing or who has the ability to make collections from all his associates and present them to his hearers. That Dr. Bogue has done to-night, because we have noticed that his appliances and methods are gathered from others as well as from himself.

There are a few points in the paper I would like to emphasize which I think are of extreme importance. Our duties as orthodontists are not merely to straighten the teeth, but to restore the type, especially here in America, where we have such a mixture of races. If we would preserve our individuality, we must preserve our natural teeth. With the extraction of teeth that is impossible. The only way to preserve the teeth is to see that this work is done in the earliest stages, as Dr. Bogue pointed out, because if it is left until a person becomes an adult, lost growth is never completed. Dr. Bogue spoke of the co-relation between adenoid growths and poor teeth. It has been supposed that adenoids were first, but that I doubt very much, and I was satisfied in finding that the lack of bone development of the face might take place long before the appearance of adenoids. I thought that Dr. Bogue would be glad to know that somebody else has noticed this.

Now, regarding the correction of children's teeth. It often happens that we can foretell irregularities in the permanent teeth by a lack of growth in the anterior segment of the upper and lower arches. That Dr. Bogue pointed out. I have found it wise, to stimulate the growth of those anterior segments before it became necessary to put any appliance on, getting, in that way, the proper width between the cuspid teeth. In one instance I moved the temporary cuspids one-quarter of an inch, and the permanent teeth were underneath them a quarter of an inch further out than they were a few months before. It shows how nicely the moving of temporary teeth influences the growth of the permanent teeth.

There is one point I want to ask Dr. Bogue about. When the Ainsworth expansion arch is used on the lower teeth and expansion takes place, the molars move without tipping. I notice Dr. Bogue, for the upper appliance, used the ordinary tube, which might permit of the upper molars tipping slightly in being brought out, which would influence the occlusion somewhat. Would not the use of a square tube of the proper size be an improvement, so as not to allow the upper molars to tip? The two arches then being expanded in occlusion would have the same shape as in the beginning.

Dr. Frank A. Delabarre.—The strongest point, in my mind, in favor of regulating teeth at any early age, is the fact that we are attempting to correct a deformity at a time when the tissues of the jaw are developing, instead of striving to make over something which nature has already completed.

There is one point about extraction which is very seldom touched upon by orthodontists. There will occassionally present in our practice cases of advanced age where extraction is sometimes made advisable by such circumstances as decay, chronic abscess, and such things. This is the principal point I wish to bring out: Where extraction is not indicated as necessary from the orthodontist's standpoint, it may be for other good reasons. This point I might easily illustrate by stating cases in which I have extracted certain teeth after due consideration, replacing them with artificial ones.

Dr. Eugene H. Smith.—There is nothing in the paper that I can disagree with, because Dr. Bogue has presented a matter which in its practice is new to me.

It is Dr. Hawley who advises the taking of measurements of the two central incisors, when they erupt, and then mathematically describing the proper circle. Bringing the temporary teeth to such circle, and showing that the permanent teeth will then follow in a normal, aesthetic arch and normal occlusion has been the effort of Dr. Bogue. It is an ingenious theory, and it may prove a most valuable one in its application, but the result of it is still young. Of course, Dr. Bogue will watch these cases to see how these permanent teeth erupt, and the results will be most interesting. It takes a series of years to prove anything, and I am glad that Dr. Bogue has been the pioneer, as he has so often been. I am going to be very careful what I say now, because I think he has been eulogized enough this evening as being a young man.

I was very much pleased to see that Dr. Bogue is gradually proclaiming himself in my way of thinking regarding judicious extraction. He showed a great number of models here to-night which of course, as he knows, and as we all know, are evidences of very injudicious extraction. That I have never had the courage to do. In my own cases where it has proven that the extraction was injudicious, I have never thrown any slides upon the screen.

If I understood Dr. Bogue correctly, at a certain age in a given case of irregularity, if the teeth were all brought to normal occlusion we would have a condition of hideous formation, and the teeth would not seem to belong to that mouth. I have been glad to see that some of the younger school of orthodontists are coming to that way of thinking.

There may be much in the theory that we can bring about normal occlusion and normal arches, by commencing with the child, but I have never tried it. I have practiced the regulating of one or more teeth in early childhood, as I think most of us have. What I mean is, where a central incisor did erupt in lingual of normal occlusion, I have used some simple appliance like a jacket-plate, gradually moving the tooth down into line. But this procedure which Dr. Bogue outlined to-night is quite a different thing. If we are to widen the arch, it follows that we should know how much we are to widen it. There must be some mathematical route mapped out. Now, the question is, is that a safe mathematical measurement; can we always rely upon it? Take the case of a young child treated in that way, the measurement of the central incisors being taken, as the key to the mathematical problem,—I am curious to know what the result would be as the laterals come through,—if, as frequently happens, they should be very small. I do not mean the peg-shaped laterals, but small laterals. It seems to me that then a space would exist there, perhaps not so great but what it might easily be closed—I don't know about that. Then, if we follow this method of procedure, normal occlusion must be developed by the position of the lower first permanent molars. Are we right to expect at this stage that the first permanent lower molar is always the right key for normal occlusion? By the right key I mean providing we have had a normal eruption of the teeth and no permanent teeth have been lost. Do we quite know in regard to the development of the condyles of the jaw? Are we quite sure that the nasal passages might not be under some influence of the head? Those are questions I cannot answer, but they loom up before me as likely to bring about results which we do not look for as we are proceeding under these hypothetical and, perhaps, logical measurements.

While I have the reputation of extracting in cases of mal-occlusion, there has been no case thus treated unless the child had reached a stage of development which I thought would warrant extraction.

Here is a question I would like to ask Dr. Bogue. In the case of a child eleven or twelve years of age, the first permanent molars having been sadly neglected, with dead pulp in one or more; with another molar with an exposed pulp, the necessary removal of which would deprive the tooth of its means of development, would he, in such a case, extract these badly diseased and broken-down first molars, and if so, would he allow the second molars to come forward, or would he fill that space with an artificial substitute?

I have proved to my satisfaction that the wisest procedure is to extract those teeth and allow the second molars to come forward and fill the spaces. You will then maintain normal occlusion anterior to that. Normal occlusion will then be maintained anterior to the second molars. I have enjoyed the paper very much, as I always enjoy the presentation of subjects by Dr. Bogue, and I regret that there is not more in the paper that I can dispute with him.

Dr. Robert Whitehill.—I would like to ask Dr. Bogue if there is not great danger in the use of these appliances which work more or less automatically, and which must so work for a long period? Is there not great danger of causing injury to the vitality of the teeth affected? I remember reading a paper of Dr. Bogue's in which he describes, I think, this case shown on the screen, or one similar to it, where an appliance was placed and left for some months while the young patient went abroad. In such a case is it not necessary to use extreme care and judgment to avoid the devitalization of the pulps of the teeth which are to be used, particularly where the teeth are to be moved rapidly?

The President.—If there is no objection, we will now ask Dr. Bogue to close the discussion.

Dr. Edward A. Bogue.—Mr. President and gentlemen, I wish to express my most earnest and hearty thanks for the very kind reception given me as well as for the criticisms which have been so kindly made. I will begin with Dr. Banfield, whose question I did not quite understand.

Dr. Banfield.—I asked whether, in cases where the arch is already wide in the molar region, it should be still further expanded and, to bring it down to a practical case, I would ask whether this arch should be spread according to Hawley's theory? (Handing to Dr. Bogue a plaster of paris cast.)

Dr. Bogue.—I would spread it immediately. Let me say here that the Hawley arch is derived from Dr. Bonwill and is not accurate. I never yet have seen a case to which it was *perfectly* adapted, and yet I do not dare to begin a case without using it. An architect draws the main plans of a house and works to them, making, of course, little modifications here and there. That is true, also of the Hawley charts. On one occasion I drew three different charts for a case and could not make them gibe with my best models. Finally I said to myself, there must be some blunder, so I measured the teeth separately, and that didn't work; then I took the sum total of the measurements of the three and made a drawing which proved to be exact. Probably my original measurement was not more than three or four one-hundredths of an inch out of the way. Answering Dr. Whitehill, I do not find danger of destroying the pulp from the use of these appliances. I am not conscious of having destroyed a pulp in any of my orthodontic operations. Dr. Whitehill also referred to the rapid moving of teeth. I never do it. The only need for moving teeth rapidly would be in adult mouths where quick results are desired. In such cases a screw appliance is used and in ten or fifteen days a result is secured which would ordinarily take ten months. Another way would be to separate the upper maxillary bones,—I have done it repeatedly, but I don't like to.

In regard to the child who went to Europe, I kept a fair track of his work, and also of his older brother. I have had three of that family, one after another. The older brother had his appliance on two years, and the regulation of his teeth took just sixty days. This younger one, I dont' know as exactly how long it took, but while his irregularity was very much greater than the others, I should not suppose he was more than three months occupied in the movement, which on every occasion was a slight and absolutely painless one.

There *is* a danger in leaving on this appliance, the danger of uncleanliness, and it is the greatest in my estimation. Granting that the appliances have been properly placed and are doing their work as they ought, uncleanliness is the most dangerous factor.

Dr. Briggs gratified me exceedingly by saying that he regrets almost all the extractions he ever made, as he looks back upon them. He mentions removable fixtures, and I would like to make this allusion to them. Dr. Kelsey, of Baltimore, who was formerly a student in my office and who has in the last three or four years assisted me with my patients living in Baltimore, wrote me within four days that a young Miss was now convinced that the removable fixtures she had been lately using were not good. The present one had been on the floor, had been stepped on two or three times and now she wanted something that would stay in place. The movable fixture moves and then stops, moves again and stops. Dr. Howe was kind enough to say that he believes in correcting these irregularities, the sooner the better, and he speaks also of using sticking-plaster after he shall have performed his orthodontic work to make the patient shut his mouth. That is good practice after the adenoids are removed, but not before. May I digress, Mr. President, to speak of another use of the sticking-plaster? Dr. G. V. I. Brown, whom you all know and respect, has done what I believe is a very great thing. He puts that same oxide of zinc sticking-plaster on the upper lips of children who have a cleft palate, as soon as he can get his hands upon them. I saw him put it on a child not more than ten days old in Paris, from one side of the face to the other, across the cleft in the lip. In this way it tends to draw the sides of the cleft together, and in about six weeks' time the operation can be surgically finished with great lessening of the size of the cleft.

Dr. Baker did not think, I suppose, of Dr. Lorentz's operation of replacing the head of the femur into the acetablum before three years of age. I saw him do that twice and it gave me more courage than anything else I ever saw.

I have had in my hands as many as twenty-four patients at one time—it is not quite so many as Dr. Smith has in the Infirmary, but I have gone to Europe leaving those appliances on, and some of those patients I did not see for seven months.

In every case where the apparatus has been carefully adjusted, the patient had required nothing more than the occasional replacement of one of the bands, which could be done by any dentist.

Dr. Andrews.—Does Dr. Bogue find any difficulty in keeping bands on the little conical temporary teeth of children?

Dr. Bogue.—Yes, I have found some difficulty. When I get such a case I swedge a cap of soft metal, platinum or gold, and let it pass up under the gum a little. I then cement this cap on, and it will sometimes stay until the tooth comes out.

Dr. Andrews.—That is a point of great interest to us,—a cap instead of a band. An entire cap?

Dr. *Bogue.*—Yes, an entire cap. I once put a cap on the permanent molar. In that case, before the permanent molars were fully developed out came the temporary teeth with the fixtures all on, and I had to bring the permanent molars into position with swedged caps with loops and I had a difficult time of it.

The Maori skull is mal-articulated. What happened to cause this, of course I don't know, but there is a failure to develop. There is a good deal said about the muscles on the upper jaw dragging and drawing the upper arch in. I have heard that from several distinguished surgeons and dentists all around the country. I do not believe it often happens. Development stops or is arrested because the powers which cause development are not operating.

It seems to me there is a great deal that can be said on this question of tongue movement, and I am surprised that it has not been brought out more. I had the honor of reading a paper before one of the Rhinological societies in New York, and the Professor of Otology of Yale College came to discuss it. He expressed his belief in the influence of the tongue on the development of the dental arch. Any influence that deflects the tongue from its bed in the roof of the mouth, and from a sucking down on the roof and pushing laterally on the sides, is sure to arrest development in the upper jaw.

Dr. Andrews.—The child sucks with great strength.

Dr. Bogue.—It has too, that being the way it gets its dinner. Very likely the case shown here of protrusion of the upper teeth was caused by something that had been sucked, though I do not think that is often the direct cause of anterior protrusion. We cannot always find the direct cause. When we come to the question of inheritance, no one knows what heredity is. I have two children under treatment now whose ancestors for three generations have had great projecting jaws, but I do not attribute the projecting of the children's jaws to that. I can find a better cause in both instances. The boy, although his teeth were beatifully regular, would insist on putting his lower lip inside the upper incisors.

Dr. Baker thought the appliance too complicated and that it could be much simplified and still do the work automatically. It has a wire and a spring, that is all, just enough to hold it in place. It seems to me funny that, in orthodontia, people expect to listen carefully only to what is done. My good friend, Dr. Ainsworth, came to New York and gave a most admirable paper on the subject, and yet I know of scarcely more than three or four who have taken the trouble to carefully study what he told them. Many think they are to get their knowledge at a stroke, but it is not so. Orthodontia is hard to learn, just as a language is.

Dr. Merriam is more than kind, and I don't know quite how to answer him. He was one of the young men who used to puzzle me with questions I could not answer, because he evidently thought more about them than I did. I think he brought up this question: Would I extract a tooth under such and such circumstances, mentioning them, and I replied, off-hand, that the extraction of teeth was an acknowledgment of our incompetency.

Now, as to the matter of Dr. Delebarre's extraction: I do not mean to say that even legs must not be amputated at times; I must give in to that, but during the last twenty-five years I have only taken out—leaving out one patient—I will tell you about him in a moment—I have only taken out five good, firm teeth, and if I can save teeth to that extent, I think most folks can. For one patient I took out eight. They were not firm, but it became a necessity, I thought, to his life interest, that they should be extracted. He needed to speak in public and could not maintain health with his teeth as they were, so I took them all out. Speaking of the Hawley charts, as I said a moment ago, I never found them accurately adapted to a single irregular case; but they are all we have, and are so nearly what we want to build on, that I do not know how to do without them. And yet I feel no hesitancy in expanding my arches, exerting tortion, taking all I want and a little more, and then fastening the two arches together. When the inner one is adapted and the outer one adapted too, the outer arch being susceptible of tightening by nuts, I have a regulator which does admirable work, and a retainer, too. All that is done by bending my arches over a paper on which is drawn the chart according to the measurements. I may vary it a little, not much. Dr. Henry Baker regulated his son's teeth. He consulted me about it before he did anything, and I have a photograph of the boy as he was then. I begged of him not to extract. Finally he got the teeth into the position he desired and I have the models of them before and at this stage. Five years intervened. I made him a bet of a penny, I think it was, that when he took the retainers off, the teeth would not remain in the condition they were with the retainers on. In other words, that the retainer did not retain. The tongue on the inside and the lips and cheeks on the outside, and the talking which he did in between, have contributed to a perfection which Dr. Baker could never have reached unaided by nature.

I wish to say to Dr. Smith that I have watched my cases with all the care that I know how to exercise, and furthermore, I shall not hesitate to say, as I have in the past, that I have made a mistake, if the mistake is there. If, on the other hand, the methods used shall prove to have been in accordance with correct principles, then we have a step forward, as I see it, of very great value to all of us who are practicing this branch of the healing art. I did throw some slides on the screen of injudicious extraction—but the judgment exercised was that of half a dozen confreres, and in one case I consulted twenty-three. The concensus of all the advice I could get was to extract, and I took out the upper bicuspids. It was all bad; I so told my patient, and I wish I could put them back.

Now, about waiting until the teeth are fairly grown before regulating. I think we have already seen the good results of early regulation and I thought I had shown cases that were six or seven year old. There are not many, yet I have had cases that were six or seven years old when the temporary teeth have been regulated, and the permanent teeth are now in the mouth. Dr. Rogers says he thinks we ought to restore the type. That we cannot do; we can restore a normal articulation or occlusion, but the type will take care of itself independently of that.

He alluded to the bones being soft before the irregularities showed themselves, and of adenoids, and I should agree with him about that. He also spoke about the Ainsworth arch not causing tipping. That is true if the tubes are long enough. There is a gentleman in Narragansett Pier, Dr. Eben Flagg, who has made an ingenious device, but as he has recently patented it, I do not care to bring it out at this time. He has used a square wire for his arch. I should think a square wire would be beneficial in many cases, used with square tubing. Whether it would be always so, I don't know. My horizontal tubes were set on a swivel, so that I get the effect of the Ainsworth arch so far as the vertical tube and wire go.

Dr. Smith asked whether, in the case he described, I would extract, and put in artificial teeth or not. I think that is one of the most difficult cases ever presented to my mind for consideration. He said a child twelve or thirteen years old, whose first molars had the pulps exposed, etc.

For a patient sixteen years of age I could anwer that question, but at thirteen years, I don't know. I think it would depend very largely upon the pecuniary condition of the family. I think the articulation of the teeth is of so much importance that if I could succeed in preserving those teeth for ten or a dozen years, whether by crowns, bands, or any other process, I should feel myself bound to do it. But, if it were the child of poor people who could not afford such things, or an ill-nourished child, I don't know what I should do,—the question would be too much for my present knowledge.

I think, Mr. President, I have detained you all too long, and I believe I have answered nearly all the questions. I thank you very much.

A vote of thanks was extended to Dr. Bogue for his interesting paper.

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THE JOURNAL

OF

THE ALLIED SOCIETIES

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THE PRESENT STATUS OF THE THOMAS W. EVANS FUND.

The celebrated Thomas W. Evans, in dying, left about three million dollars for the founding of a museum and dental institute, which, according to his own words, should be "for the establishment of his fellow citizens of Philadelphia, and especially his beloved dental profession." This institution was to be similar *en regime* to the other institutions then existing and inferior to none. Unfortunate litigation with the heirs of Thomas W. Evans reduced the sum of three million dollars to about a million.

The dentists of Philadelphia, for whom the money was especially intended, are divided into two factions. One faction, largely composed of graduates of dental colleges other than the University of Pennsylvania, wish an independent post-graduate school to be founded with the fund, where all can be equally benefitted. The other and smaller faction desire the fund to go to enlarge the dental department of the University of Pennsylvania. The faction desiring the independent post-graduate school admit the general advantage that would accrue to Philadelphia if the University were made prosperous by such a sum, but they think greater good would be obtained by founding a post-graduate school that would invite earnest dentists from all over the world to come either to teach or to learn the latest discoveries and methods based on scientific research. For so rapid is the progress of dentistry that a dental graduate of a few years' standing finds much of his technique obsolete. He may partially counteract this deterioration by attending conventions where essays and clinics are presented and by reading the dental journals. But instruction obtained by miscellaneous essays must, of necessity, be of a haphazard and incomplete nature, the value of a chair clinic can be enjoyed only by a favored few who first seize the vantage positions, while the usefulness of the journals is decreased by the fact that they have to be filled each month whether the copy be original or hackneyed, sound or specious.

If a dentist, after five years of practice, goes back for instruction to his Alma Mater, he finds that the undergraduate college is intended to teach rudiments and methods already generally known throughout the dental world. What the dental profession needs principally to-day is an independent post-graduate school founded on broad, liberal principles, where the latest methods are shown and the newest discoveries taught. Such a feeling impelled the dentists of Philadelphia, when they assembled in public meeting last May and passed the following resolutons and appointed a committee of representative dentists to present them to the Trustees of the Thomas W. Evans fund that have incorporated themselves as the Thomas W. Evans Museum and Dental Institute Society.

Whereas, The dentists of Philadelphia have assembled in public meeting to show their deep interest in the future of the Thomas W. Evans Museum and Dental Institute.

Whereas, The will of the late Thomas W. Evans has provided for the founding of a Museum and Dental Institute, "inferior to none," for the benefit of his fellow citizens and especially those of his "beloved dental profession," and, therefore, presumably independent and not subject to the direction or control of any other institution.

Whereas, We, the dentists of Philadelphia assembled in public meetings, anxious that every reputable practitioner graduated from any college whatever, shall have full enjoyment of the rights and privileges provided by the Thomas W. Evans Museum and Dental Institute.

Whereas, It is generally conceded that with four dental colleges for undergraduate instruction now in existence in Philadelphia, the education of all intending students of dentistry is amply provided for.

Be it therefore resolved, That the Trustees of the Thomas W. Evans Museum and Institute Society be respectfully informed that it is the opinion of the dental profession of Philadelphia that the Evans bequest can be more beneficially applied to post-graduate than to undergraduate instruction.

That this can be done by providing courses of didactic instruction and demonstration for ethical graduates and pratitioners of dentistry.

That such courses should be given by eminent teachers of dentistry, or those who have made special investigations along scientific lines having a direct or collateral bearing upon the theory and practice of dentistry.

That this instruction could be given at such times and under such conditions as to make it available to practitioners who are required to devote many of the best hours of the day to regular office practice.

That it would be desirable to establish special laboratories fully equipped for experimental work in Histology, Bacteriology, Chemistry, Physiology and Pathology, etc., under competent instructors in which original work may be carried on by those qualified to engage in it.

That free instruction for worthy young men of limited means, as contemplated by Dr. Evans, can be provided for by the issuing of scholarships which may be accepted by any of the existing dental schools.

——————— University of Pennsylvania;
WILBUR F. LITCH, Dean, Pennsylvania Col. Dental Surgery;
SIMEON H. GUILFORD, Dean, Philadelphia Dental College;
I. NORMAN BROMWELL, Dean, Medico-Chirurgical College;
HOWARD E. ROBERTS, Academy of Stomatology;
JOSEPH HEAD, Pennsylvania Association Dental Surgeons;
HENRY C. REGISTER, Philadelphia Dental Club;
FRANK D. GARDINER, Stomatological Club;
GEORGE F. ROOT, President Public Meeting;
Committee.

Dr. Kirk refused to serve on this committee or allow the University to be represented, as he had already made a proposition of his own to the Trustees of the Thomas W. Evans Museum and Dental Institute, which was as follows:

With regard to a plan of affiliation by which the educational and administrative activities of the two institutions may be practically carried on in entire harmony, I am informed by competent legal authority that it is a fundamental principle of the law of trusts that trustees cannot delegate the management of their trusts to others. The trustees of the Museum and Institute therefore cannot delegate the management of the Museum and Institute to the trustees of the University, nor can the trustees of the University delegate the control of the expenditures of any moneys in their hands to the Trustees of the Museum and Institute. This rule, which prevents the delegation of a trust to another, does not, however, prevent two such boards as the trustees of the Museum and Institute and the trustees of the University of Pennsylvania from acting in complete harmony with each other down to the smallest detail. It would, therefore, be legally proper for the trustees of the Museum and Institute:

1. To matriculate a student matriculated in the Dental Department of the University.

2. To refuse to matriculate a student not matriculated in the Dental Department of the University.

3. To drop a student from the Institute if he was dropped by the University, though, of course, the student, on matriculation, should be made to understand that a condition of his remaining a student of the Museum and Institute, was his remaining a student in the University.

4. To employ as teachers only those employed by the University.

5. To dismiss a teacher discharged by the University, though here again the teacher being employed should understand this as a condition of his continued employment.

6. To permit the lectures given by the professors and teachers to be regarded as lectures given by the University, provided the lectures were also announced and given as lectures in the Museum and Institute.

7. To advertise and announce the Museum and Institute in the advertisements and announcements of the Dental Department of the University, and to confine all announcements and advertisements of the Museum and Institute to the advertisements and announcements of the University, provided the separate existence of the two institutions was made clear in all advertisements and announcements.

8. To allow the Department of Dentistry of the University to occupy the building of the Museum and Institute, and place the name of the department on the outside of the building of the Museum and Institute, provided there also appeared on the outside of the Museum and Institute in any equally prominent place, the full name of the Museum and Institute.

It is not intended by the foregoing specific suggestions to exclude the consideration of any other plan that may occur to your Board as being more desirable or practicable for the attainment of the same general objects. In presenting this plan my desire has been to arrive at a practical solution of the question which is of first importance to all of the interests involved, and in doing so I have kept constantly in mind the principal object, viz: the advancement of the work of dental education, which I interpret to be the intent and purpose of Dr. Evans, as expressed in his will, and I have endeavored to act in harmony therewith.

Respectfully,
(Signed) Edward C. Kirk, *Dean,*
Department of Dentistry,
University of Pennsylvania.

The Trustees of the Thomas W. Evans Museum and Dental Institute are now considering what is to be done with the Evans fund.

Joseph Head.

IS DENTISTRY A PROFESSION?

While a wide difference of opinion probably exists regarding the present status of dentistry, thinking men seem to agree that during recent years steady progress has been made toward a professional position.

Many things have contributed, of course, to such advancement and most of these forces are still active, improving the position of the dental specialty and guiding toward a higher plane.

Enumeration of the influences for good, above referred to, is unnecessary here, the object of this little article being, rather, to call attention to a few special conditions which, in the opinion of the writer, must be changed before a real professional standing for dentistry can be secured.

Better education for young men entering dentistry is, of course, advisable and necessary, if continued progress is to be made, though even teachers do not agree regarding the changes which should be made in the study course or in the requirements, preliminary or final.

This point is too broad to be more than referred to here and should be the text of a special article.

Dentistry will not, in the opinion of the writer, be a profession in the highest sense while dentists who contribute to its literature are satisfied to have their writings published in journals controlled by commercial houses, or while reading dentists are content to depend entirely upon the contents of such magazines.

Dentistry will not be a profession while any considerable proportion of dentists use local enaesthetics, pulp or sensitive dentine nostrums or other secret remedies instead of compounds of drugs of known value, chosen by themselves or by other men of education.

Nor will dentistry, in the opinion of the writer, be a profession while those who practise it take out patents upon their inventions of methods, instruments, tools or apparatus, or while the securing of patents by practitioners is looked upon as right and proper by the majority of dentists.

There must be a change in these respects not only in the acts but in the sentiment and opinions of many.

At a meeting of the Northeastern Dental Association at Suringfield, Mass., a few years ago, Dr. J. N. Crouse, while publicly reporting the results of the effort of the Protective Association, of which he was the head, to guard dentists from fraudulent patents and royalty taxation, asked the question which is the title of this article and stated in a very pessimistic way his personal opinion that "dentistry would never be a profession!"

At that time Dr. Crouse was in control of a dental supply house which dealt largely in patented articles and amalgams, local anaesthetics and other nostrums, the component parts of which were secret.

He could not seem to see that in order to be successful in his efforts to protect dentists from fraudulent patents, etc., it was necessary to approach the situation with clean hands and while standing firmly upon a principle, he being a practising dentist and, supposedly, ethical.

A member of the Society, in reply to Dr. Crouse, called attention to the inconsistency of Dr. Crouse's position and to dentistry's need of a revolution in those directions before a high professional position could be achieved.

The prevailing sentiment, however, was such that the thoughts expressed were not popular, there was no applause and in the published report of the meeting the discussion did not appear. Comment—the Northeastern published its proceedings in a trade journal!

It is right and proper for one in commercial life to advertise his wares and to give early and serious thought to the profit he may be able to secure from the sale of his goods. The inventor, also, unless he is practising some branch of medicine, would naturally patent his inventions.

The professional man, on the contrary, should give his best thought and most earnest attention to the acquirement of increased knowledge and skill in order that he may more greatly benefit his patients, giving freely to his fellows the results of his inventive genius and supporting with pen, voice and purse the journals and societies which are not controlled or supported by trade houses.

The professional man's income is pretty sure to be commensurate with his ability and the value of his services, but his attention should be directed to the improvement of that service and not upon the fee to be secured. In other words the predominant thought of the professional dentist will be "how can I benefit this patient most" instead of—as has been advised in the past—"what is there in this for me!"

The Allied Socities now have a great opportunity to improve the ethical and professional position of dentistry by taking a firm stand in favor of these and other important questions.

The time is ripe, the influence of the societies is large and they have a good medium, with increasing circulation, in the Journal, for the distribution of such ideas.

The thoughts above referred to are trite and have been better expressed many times by others, but improvement will only come by diligent and constant emphasis upon duty, privilege and principle.

SEBERT E. DAVENPORT.

ANESTHETICS.*

ALEXANDER J. WRIGHT, L. D. S., R. C. S.,(ENG.) ; D. M. D. (HARVARD),
OF PERTH, WEST AUSTRALIA.

As this is a very important agent in Dentistry, I think we should avail ourselves of every opportunity of understanding the best way to get the most satisfactory results with each anesthetic agent. We should use, also, the least possible quantity for as long an anesthesia as we desire. I should like to say at the start, we want to decide how long do we require to do a given case.

In selecting an anesthetic we have to consider several things:

(1) The nature of the operation.
(2) The state of the patient, age, sex, etc.
(3) The skill of the operator.
(4) The wish of the operator.
(5) The length of time required for the operation.

For dental operations we do not require as a rule a long anesthesia such as is required for other surgical operations, but we have always to take into consideration the skill of the operator. As many dentists do not administer anesthetics for themselves, the administrator is rather working at a disadvantage if he does not quite know the skill of the operator; but I think in such a case he should ask what time the operator requires for the operation and other things considered, then select his anesthetic. But should the operator be the administrator himself, and should this be for extractions, his first step should be thorough inspection of the mouth, and a definite course laid down for his operation, and he should decide with which tooth or stump he intends to start and where he intends to finish, and he should get his instruments in readiness; but under no consideration should these be in view of the patient. They (the instruments) should not be seen by the patient from start to finish. If there is one thing that will disturb a patient it is seeing the instruments before the operation. Next, there should not be any conversation during the induction of the patient unless it is a word from the anesthetist to assure the patient, etc. On the patient's coming out of the anesthetic do not rouse him but let him come to of himself, and never make it a practice to ask a patient whether he has felt any pain. On the other hand you may assure him it is all over and you are quite satisfied that he has felt no pain. I have had cases in my experience where I have been quite certain no pain was felt, but the patient imagined he had felt pain. One case in particular I should like to quote.

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*Read before the Metropolitan District Society, February 10th, 1908.

A lady came to me to have two bicuspids superior, a right and left side, extracted, but assured me she had taken gas on several occasions and on every occasion had felt the pain. This I assured her she should not feel and proceeded to place the gag in position and administer the gas. On removing the face piece I found she had got the gag out and had her teeth firmly clenched, and as I had so confidently assured her she should not feel it, I simply waited until she had regained consciousness: and as soon as she did her first remark was "I felt those come out." The only way I could assure her they had not been touched was to give into her hands a mirror to see for herself. Further than this she assured me she felt the right one first and the left one next. I administered gas again and extracted the two and assured her it was impossible for her to have felt those and she agreed with me that she did not feel them.

I will first state my method of giving N_2O:

In placing the face piece on the face see that it fits comfortable and firmly, yet lightly, and never allow it to so lay on the face that air might get in at the sides. This to my mind is one of the greatest faults, or, I should say, the most frequent error I have seen (not being careful of the fit of the face pieces and allowing the air to mix with the gas in this way).

Now ask patient to breathe naturally (not long breaths) and allow the patient to have two or three inhalations of air, telling them it is only air, not gas, they are breathing. By this means they start breathing naturally and at the end of an expiration turn on the gas until the first signs of cyanosis is seen (ears getting a little blue, or muscles twitching, or stertorous breathing starts); immediately this is noticed, at the end of an inspiration turn off gas and give patient two expirations and two inhalations of air, and cutting this sharp give four to six inhalations more of gas. By this method I always get a longer time, and I have succeeded more than once in getting quite double the time I could get in any other way of administering gas. As I have previously said, do not speak to the patients until they have quite come to consciousness, and then assure them that it is all over.

Another method I have used to a great extent: Using a two-gallon bag and allowing the patient to breathe backwards and forwards into the bag (the bag being connected by tubing to bottle by Clarkson fast key) and replenishing a little more gas when about half under, and as in the previous method, giving two inhalations of air at first sign of cyanosis. This method is more economical with the gas and you get excellent results if the same instructions are observed.

The objectionable methods I have noticed by some administrators are: 1. Not loosening the corsets and neckbands. 2. Allowing patients to see instruments. 3. Not getting patient well under the anesthesia. 4. Getting patient too deeply under. 5. Trying to rouse the patient from the anesthetic immediately the operation is over; and last, but not least, 6, showing a little consideration for the patient. It well repays one to be kind and courteous to patients. By this means you win their confidence and they will feel safe in your hands.

With all anesthetics, if a patient is in a delicate state of health or has a weak heart, I give the patient a few minutes before the anesthetic twenty to thirty minims of spirits of ammonia in one ounce of water.

By this means I have given gas to all sorts of patients and have never yet refused to give gas to any person, and as I have been a dentist for eight or nine years to the largest general hospital in Western Australia, you can well understand one would get patients with all sorts of diseases to operate on.

Should a longer time be required than we can get with N2O, I give the mixture of N2O and ethylchloride. With this method I can rely on getting from 95 to 150 seconds. My method of giving this mixture is as follows: Using a one-gallon bag with a Bath's 3-way stop cock and face piece and a ball joint with a graduated measure into which are put from one to three C C's of ethyl chloride. After adjusting the face piece as previously described, allow patient to breathe backwards and forwards into the bag for five inhalations and expirations, and at the end of an inspiration tip in the ethyl chloride at same time saying to patient "Do not mind the smell," as this is a lttle pungent. From the time the patient inhales the first breath after this has been tipped in, give it for 25 seconds, remove at the end of that time, and your result will be success. But in the case of a child under ten years from 15 to 20 seconds (and if your room is not below 60 Fahrenheit, which I should have stated previously), for it requires not less than that to evaporate the ethyl chloride.

I have only seen one patient sick in two thousand, and this is, if anything, less than with gas only; and no other after effect that you do not find with gas.

Should you, however, require a longer anesthesia give 3 C C of ethyl chloride, one gallon of gas and 3 C C of ether, mixing the ethyl chloride and ether together in the tube by shaking them together in the tube and give six inhalations of gas (backward and forward breathing) and then tip the mixture, warning patient as previously stated. From the first breath give it for forty seconds and you will get an anesthesia lasting sometimes to three minutes, with very little after effect which will pass off in two to five minutes.

Should, however, a longer time be required I use the same apparatus (minus the graduated tube) and place between the face piece and the 3-way stop cock a Clovers ether inhaler into which I put any quantity of ether up to 2 ounces and according to the time I require I may get the patient almost under with gas and then allow him to take ether until completely anesthetised, or if I require a still longer time I give gas only until slight anesthesia or the first stage is reached and then get patient well under with ether and by this means you can get any time up to ten minutes from your one anesthetic.

But should an indefinite time be required for any oral operation, I have not yet seen any apparatus that so well fills the place as the one introduced to the profession by the late Dr. Fillebrown; and this I think could be more conveniently used if attached to a compressed air apparatus with a regulating gauge and an appliance attached to the tube to cut off the supply entirely should it be necessary.

I always prefer to give any anesthetic early in the morning before breakfast.

I think a great mistake is often made by some administrators in advising the patient to have a glass of milk, or some spirits before an anesthetic. This is often done and I think it is a great mistake. I will not go into detail here to explain reasons, but will be pleased to do so should you wish it.

In conclusion let me say that I quite endorse Professor Potter's remarks that I heard him make to his class, (that dentists should not give away their birthright)—as ether and gas were first introduced by dentists let them be used by them—but with this added: see that you quite understand the agent you are using and know what to do in a case of emergency, and do not forget to have these requirements near at hand.

PREPARATION OF CAVITIES FOR FILLING.*

BY BYRON H. STROUT, D. D. S., BOSTON, MASS.

Mr. President, Ladies and Gentlemen:

At the request of your Executive Committee, I have compiled this paper on the preparation of cavities in teeth for filling. While this is an elementary subject, it is of the utmost importance.

I wish to say at this point that this is in no sense an original paper except in its form; that the matter has been compiled from various sources, largely from lectures by Dr. G. V. Black, and that considerable portions are direct quotations from Dr. Black's writings. I hope I may have made such an arrangement as will provoke a full and free discussion.

I shall say no new things—that is impossible. In this short paper I am unable to give a complete description of the manner of preparation of all kinds of cavities. What I have tried to do is to give you a resume of the principles which should govern in the preparation of all cavities. At the end I will show you a few models with concrete examples.

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*Read before the Boston and Tufts' Dental Alumni Association, April 8, 1908.

Our success in the profession depends to a great degree upon the strength and stability of the fillings we make. Proper preparation of cavities largely controls the matter of stability.

We may classify cavities according to their place of origin upon the tooth. These classes are called Pit and Fissure cavities and Smooth-surface cavities. These are the most important of the many classes into which cavities have been divided, and the two call for radical distinctions in their consideration and treatment.

"Pit and Fissure cavities have their beginning in minute faults in the enamel of the teeth known as pits, formed where three or more lobes of the teeth join, making imperfect closure of the enamel plates, as upon the occlusal surface of the bicuspids and the molars and the lingual surface of the incisors, or at the endings of grooves as upon the buccal surfaces of molars." "Fissure cavities begin in points of imperfect closure of the enamel plates along the lines of the grooves. These latter may occur along the lines of the grooves of any of the teeth, but are seen mostly in the occlusal surfaces of bicuspids and molars."

"Among the groups of cavities as named by their position on the teeth, all the occlusal cavities in the bicuspids and molars are, in their beginnings, pit or fissure cavities." "A part of the buccal cavities in the molars are pit or fissure cavities occurring in the buccal pits or fissured grooves, and part are smooth surface cavities, occurring in the smooth portion of the enamel of this surface to the gingival of the pit or in the gingival third." "All buccal cavities in the bicuspids are smooth surface cavities." "All labial cavities in the incisors and cuspids are smooth surface cavities." "All lingual cavities in the upper incisors are pit or fissure cavities, and a few fissure cavities occur on the lingual surfaces of the molars." "All proximate, or mesial or distal cavities, whether in the molars, bicuspids, cuspids or incisors, are smooth surface cavities. Lingual cavities in the molars are also mostly smooth surface cavities."

"Pit and fissure cavities occur in surfaces of the teeth that are habitually *clean* except as the imperfections of the enamel-pits and fissures afford places for the lodgment and fermentation of debris, which causes the beginning of decay. Therefore in their preparation for filling they require no extension for the prevention of the recurrence of decay, further than a sufficient opening of the cavity to completely uncover the carious area and to find margins sufficiently level and smooth to allow of a good finish to the edges of the filling." "Smooth surface cavities occur in positions in which the surface of the enamel is habitually *unclean,* and usually begin in the center of the unclean area." "The injury to the enamel surface tends to spread superficially from the central area of first beginning toward the margin of the unclean area." "Therefore such cavities require such extension in their preparation for filling as will include the habitually unclean area within their outlines, in order to prevent the recurrence of caries."

In the actual work in the preparation of cavities for filling, there is a certain order of procedure, (given by Dr. Black), which if borne in mind and followed out will greatly simplify some of the steps of the work. As I give the order of procedure to the Operative Technic class it is as follows:

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"Obtain first the required outline form.

"Obtain second the required resistance form.

"Obtain third the required retention form.

"Obtain fourth the required convenience form.

"Fifth, remove any remaining decayed dentine.

"Sixth, correct the form of and smooth the marginal edge of the enamel, bevel the marginal angle, and make the toilet of the cavity."

"Outline form, is the form of the area of the tooth surface to be included within the outlines, or enamel margins of the finished cavity. "The laying out of and cutting to these lines should be the first thing considered. "In all pit and fissure cavities; these occurring on surfaces which are habitually clean, the outline form is found, simply by breaking down all overhanging enamel walls, completely uncovering the carious portion, and following out any defective grooves connecting with the cavity to such points as will enable a perfect finish to be given to the filling. This work is best accomplished with enamel chisels and hatchets, though for following fissures the burr is often the best instrument.

"In smooth surface cavities, that is in proximate cavities and buccal and lingual cavities which do not begin in pits and fissures; a different principle is involved and much greater study and skill required to determine the proper outline form.

These cavities usually begin in the center of an area of uncleanness, which is habitual. "The superficial injury to the enamel tends to spread. Therefore in laying out the outline form the size and form of the unclean area should be borne in mind and the outline form extended not only to uncover the decayed area but through sound enamel and dentine, if necessary, so as to include within its boundaries such portions of the surface as are liable to decay in future. As decay is liable to occur upon surfaces which are habitually unclean, and upon such surfaces only, the whole of the unclean area should be included in the outline of the cavity." This requires a careful study of the conditions surrounding each smooth surface cavity, and the extension of the cavity outlines to the safe area is a problem often difficult of solution.

This cutting is known as the extension for the prevention of the recurrence of decay.

This principle is not new. It has been taught for many years by our ablest men; but in recent years it has been brought more prominently to the front by a school which has carried the principles to its extreme limits. I would counsel moderation in this as in all things. While the premises are correct without the possibility of any refutation, there are many conditions to be met where the logical cutting may and should be restricted.

For instance, in very young patients, while the resisting power of the system is small, and before settled habits have been formed, it would be foolish to try to make permanent work of any kind. For older patients it would be sometimes more tactful if the continued patronage of the patient is desired, to put in smaller fillings, knowing they would fail in comparatively a few years, rather than to extend to the proper degree for safety and charging a fee commensurate with the work required.

Again in middle-aged or elderly persons, with strong teeth where cavities are few and decay progressing very slowly, it would seem to me very poor judgment that would advise extension for prevention to any considerable extent.

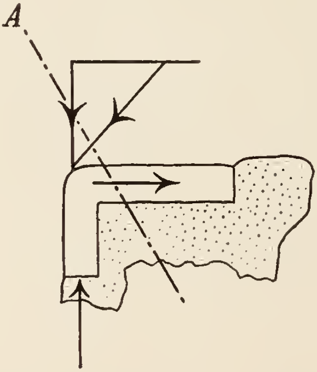
"Resistance form is that shape given to a cavity intended to afford such a seat for the filling as will best enable it to withstand the stress brought upon it in mastication." "Its importance stands in direct relation to the degree of the exposure of the filling, to the occlusion, and to the strength of the closure of the jaws." "It is necessary to provide for a stress of from one to two hundred pounds and in some cases more." "The resistance form consists in a *flat* seat for the filling cut at right angles with the direction of the stress of mastication or usually at right angles with the long axis of the tooth." "In occlusal cavities, for instance, the floor or pulpal wall should be cut flat and all the surrounding walls at definite angles with the pulpal wall." "In prox-imo-occlusal cavities in which the greatest possible support is needed, the gingival wall of the proximal portion is cut *flat* and at right angles with the long axis of the tooth, both mesio-distally and bucco-lingually, and extended on both buccal and lingual sides into fairly definite corners or angles." The occlusal portion is also given a flat seat or floor. "Generally this is easily attained with the same instruments and by the same modes of cutting used in gaining the outline form if the two objects are held strictly in view."

"Retention form is the provision made for preventing the filling from being displaced. A large part of this is provided for by the resistance form. But it is further required that provision be made that will prevent the filling from being thrown out of the cavity by lateral or tipping force that may be brought against it." "All cavities should be provided with ample retention form, but this provision is required in its more perfect form in mesio- or disto-occlusal cavities in the bicuspids and molars. "In these cavities, besides that retention which may be on the buccal and lingual walls of the proximal portion of the cavity, additional provision is made in the form of a step in the occlusal surface, which may be more or less dovetailed. "In most cavities the retention form is made by so shaping the opposing walls that they will be strictly parallel or very slightly undercut in order that when the filling material is thoroughly packed between them, it will be securely held in place. "This is done variously in different situations. "Formerly pits and grooves were much depended on for this purpose, but have proved delusive, so that latterly it has been required that the form of the walls be such as to perform this function.

Tufts College, March 4, 1908.

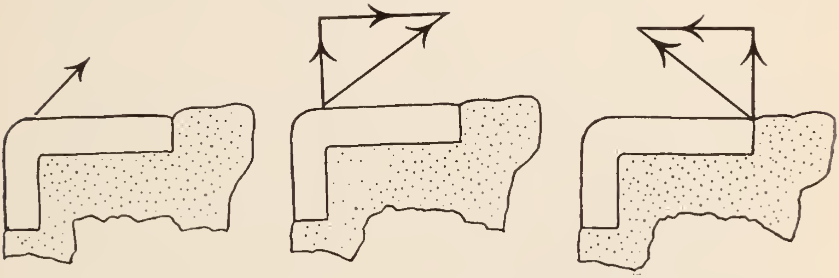
In compliance with your request, I have carefully considered the relation of various forces which might be imposed on the filling of a tooth similar to that indicated by the model shown. I have attempted to show these relations on the photograph of the model but have not succeeded in doing this satisfactorily. I therefore submit the following in place of the photographs.

Let it be assumed that the floor of the excavation is perfectly level, that the side walls are vertical, and that the filling of gold is sufficiently rigid to withstand any forces likely to be impressed by action of the jaws. Then it follows that any force applied downward on the filling at any angle whatever (except one of 90 degrees in which the downward force will be wholly offset by the reaction directly upward of the filling itself) may be resolved into two components, one perpendicular to the filling, and the other tangential to it. The equilibrium will result from two reactions. First, the vertical component will be equalized by an equal opposite upward force due to the rigidity of the filling, the filling itself being supported by the floor of the excavation. Tangential force will be equalized by an equal and opposite force which s due to the side push of the walls of the excavation. Consequently, as a result of both of these reactions, the filling would remain in place. Any system of forces which tend to rotate the filling would be prevented from so doing by the dovetail formation of the excavation. It follows, therefore, that the only other tendency of the filling, due to downward forces, would be a tendency to tip when the forces are applied at the extreme inside edge of the filling. (See figure).

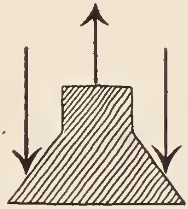


In resolving this force into its components it is seen that the tangential component is offset by the side push of the walls, that the vertical component is offset by the upward push of the lower wall of the excavation on the side of the tooth. Consequently, if the gold is rigid the filling should hold. In case the filling is not rigid, the tendency will be to extend the filling possibly to a dangerous point along the line marked A.

I think it is true, then, that no downward force can be applied which is not equalized by the reactions of the walls of the excavation. Upward forces, due to the adhesion of sticky substances, would result in a tendency of the filling to lift. Whatever the direction of these forces, except in the case where the force is directly upward, we may resolve the pull into two components, one vertically upward, and one tangential. (See diagram).



The tangential force will be offset by the reaction of the walls. The upward force must be offset by the rigidity of the filling. That is to say, the upward pull must be offset by the reaction of the inclined side walls in that part of the excavation which extends down the side of the tooth. (See diagram).



It would seem that in all probability it is mechanically impossible for the operator to make the walls perfectly smooth. The filling, if properly put in, will adhere strongly enough to the side wall to offset any tendency towards lifting.

I would raise one question regarding temperature effects. Would the loosening of the filling result from a sudden reduction of its temperature by the application of some cold substance like ice, for instance? It will be possible to produce a combination of circumstances which will result in the reduction of the temperature of a filling and at the same time carry with it an upward pull.

I have been unable to get any satisfactory data on that point, so merely raised the question for what it is worth. I am convinced that the filling will remain in place if the work is properly done with a side wall which is as ordinarily finished by the dentist. Certainly any roughness which might be left on the lower part of this wall would insure the stability of the work.

Trusting that the foregoing may be of some use to you, I am,

Sincerely yours,

HENRY G. CHASE.

"Convenience form, though secondary to other points in the formation of cavities, should not be neglected." "When the general form of the cavity has been developed, modifications are to be made that will render the form more convenient for packing the filling material. Often by cutting a wall away to a certain angle the plugger point will reach some portion of the cavity better, or at a more available angle, enabling the operator to pack gold more certainly and more securely in certain important parts of the cavity. "Also such cutting may render the filling so much more convenient as to save time and much wear and tear upon poth patient and operator."

"A second order of convenience form is slight undercut-pits or grooves situated in angles or other parts of the cavity, for starting points in packing gold, or that will hold the first portion of the filling material while other portions are being packed, or until the true retention form of the cavity has been filled. The study of the placing of these conveniences is specially important, as they may be of great assistance in starting the filling and in securing the first portions."

Remember, however, that these pits and groves are in no sense retention forms, but merely conveniences.

"Fifth, remove any remaining decayed dentine. "Generally, when the cavity has been cut to form no carious dentine will remain, but in the larger decays it will often be a question whether or not the pulp will be exposed when all decayed dentine overlaying it is removed. It is especially an object that we do not cut toward the pulp until the cavity is otherwise well prepared, for the reason that if a pulp exposure is found the cavity should be

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fully cleaned and ready for the immediate treatment of the pulp in any manner indicated. "When this stage of the preparation is reached the remaining softened dentine may be carefully removed with broad spoon excavators."

"Finishing the marginal edge and beveling the marginal angle of the enamel is the last cutting done in the preparation of a cavity. "The form, or bevel, should be as nearly as practicable in the line of the length of the enamel rods, or such as will certainly cut more from the outer than the inner ends of the rods. "This may be done by a light planing motion with a sharp chisel or enamel hatchet." The depth of this bevel should generally not include more than one-fourth to three-quarters the thickness of the marginal edge of the enamel. The angle of the bevel should be from fifteen to twenty-five degrees. The object of the bevel being, first to cut away any loose ends of enamel rods that might afterward fall away and render the margin imperfect, and, secondly, to strengthen the marginal angle of the enamel as a safeguard against possible checking in packing the filling material.

"In this last work, two things should be held closely in view. "The marginal angle of the enamel is friable and readily broken by violence, and beveling will materially lessen this liability. "But the marginal angle of the filling material which covers the bevel must not be made too thin by too great a bevel of the marginal angle. "If so, it will have no strength and will tend to roughen and in this way render the margin imperfect. Therefore, the marginal angle of the enamel must not be beveled to too great a degree."

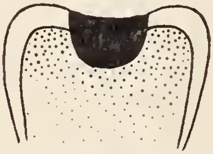
"Finally the toilet of the cavity is to be made. This consists in freeing all of its surfaces from the chips and dust that have accumulated during the preparation." The bulk of this is done, of course, with the chip-blower during the excavation. But there will remain some fine dust upon the walls and margins that cannot be removed in this way. It is not well to wash this out with any known liquid, but better to thoroughly wipe or sweep out the cavity with absorbent cotton or bits of punk held in the pliers. "This should be well done and the cavity is then ready for filling."

I have here several plaster models such as we use for practice in our technic work. This first photograph (model shown but impossible to illustrate) shows an occlusal cavity in an upper molar. The points I wish specially to call to your attention are, the flat floor, the general retentive shape of the cavity, and the joining of the axial walls to the pulpal wall at a definite angle.

I would call your attention at this point to the considerable variation in teaching to be found in the writings of the older authors and in those of more modern date. For instance, in the American System of Dentistry, published in 1887, page 76, Dr. Louis Jack says—"The typical form of a coronal cavity to enable it to be solidly filled, would be like the accompanying outline; (Fig. 67 at margin); but as the filling would not remain in place it becomes necessary to alter this form to enable it to grasp the filling material. This is effected by making a groove around the cavity slightly within the margin. (Fig. 68 lower margin.) From American System.

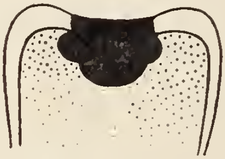
You will easily see by comparing this diagram with the model, the lack of resistance form in the diagram, the weakening of the walls by the groove, and the difficulty of making a perfect adaptation of the filling material in the groove.

Fig. 67



TYPICAL CAVITY

Fig. 68



TYPICAL CAVITY AS GROOVED FOR RETENTION

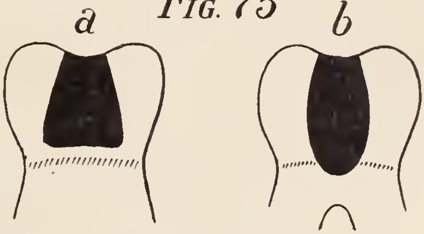
In the American Text Book of Oeprative Dentistry, published in 1897, Dr. S. H. Guilford says, page 138: "In shaping the cavity internally, instruments should be used that will leave the cavity free from angles for the filling material cannot be perfectly adapted to them."

Dr. C. N. Johnson in Principles and Practice of Filling Teeth, page 99, says: "The advocacy of angles between the walls of these cavities may impress many as being illogical and impracticable in view of the orthodox teaching on the subject * * * Gold can be easily and accurately adapted into a sharp right angle, as has been repeatedly proved by experiment. The advantages of making angles in cavities relate to the ease with which fillings may be started in such cavities, and the unquestioned security of anchorage without undermining and weakening the walls. Fillings built upon flat bases have a greater stability against displacement under stress than those built upon curved bases, and the gold is less likely to rock during its insertion."

In the American System of Dentistry, page 87, we are shown two diagrams. In one the outline (Fig. 75a, Diagram in Margin from American System) form is very similar to that shown by this model. In the other the gingival line is cut in the form of a circle, the concavity extending through the enamel into the cementum. Dr. Guilford says: "The outline should, when the nature of the case will permit, be curved throughout, and should meet the outline of the inner and outer lateral walls of the cavity by an easy rather than an angular curve. When this wall is so formed, the movement of the gold as it is packed tends by the plainest mechanical laws to closer apposition with the surface."

This would undoubtedly be true were it possible to cut this wall in the shape of a true circle. As that is not possible it is self-evident that the slightest movement of the filling material after it is once condensed, will be fatal to the integrity of the filling. The form shown in the diagram (Fig. 75b) has other faults. The filling is very difficult to start unless grooves or pits are made, and this I believe to be almost always a source of weakness. The whole filling also will have more or less tendency to rock, according as the outline aproaches a true circle, until the cavity is nearly full. Another source of weakness is the angle at which the walls cross the enamel line. If they cross at all, they should cross at as nearly a right angle as possible and if any part of the gingival line is below the juncture of enamel and cementum, the whole of the line should be below.

FIG. 75



In the model you will notice we have carried out the same principle as shown in the molar. The outline form of the occlusal cavity is the same. The proximal cavity, being a smooth surface cavity, is extended to include the unclean area. The amount of extension depending on the shape of the tooth; whether it be round or flat. The gingival line below the margin of the gum and following the curve of the gum in outline, thus making a curve with the *convexity* rather than with the *concavity* toward the occlusal surface. This form gives us angles definitely shaped, both on the buccal and lingual sides. In these angles the filling is easily started.

Resistance form consists as in the molar, of the flat floor and in the proximal portion of a flat gingival line. Flat both ways. At right angles to the long axis of the tooth mesio-distally*. In the bucco-lingual direction it should be cut either in a straight line or in a curve with the *convexity* to the occlusal. This curve should follow the gum line though below it.

Our retention form is obtained as before by the general shape of the cavity, rather than by the use of grooves and sharp or deep under cutting. The buccal and lingual walls are cut perpendicularly to the pulpal wall, as far tward the occlusal as possible; slightly undercutting on either side if the walls have sufficient strength. For additional security the occlusal portion of the cavity is dovetailed. The two together make an almost perfect retention. At the point where the perpendicular joins the horizontal wall, round the angle, as the gold is built over a sharp angle with difficulty.

For convenience the marginal ridge is cut through to such an extent that we may be able easily to reach every portion of the cavity with straight or simply curved packing instruments. Points which may be reached only by pluggers with complex curves, are almost sure to be imperfectly filled. If for any reason the filling is started with difficulty, it is proper to drill small pits or grooves at the angles to assist in holding the first pieces of gold. Keep in mind the fact, however, that these are convenience and *not* retention forms.

No detailed description of the other models is necessary. The same principles apply, wherever the cavity may be situated.

In closing I would say that there is no special way in which any or every cavity should be prepared. "Circumstances alter cases." There are, however, certain principles, applicable to all cases; these should always be borne in mind.

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* A groove should not be drilled along the gingival wall as is often advocated. See Johnson, page 123.

MODERN DENTISTRY AS PREVENTIVE MEDICINE.*

BY MR. HORACE FLETCHER, OF NEW YORK, N. Y.

Mr. President, Members of the Association, Ladies and Gentlemen—Naturally I have not come before you to teach any of the details of your profession, but, as your president has said, to give you some idea of what may happen as the result of the conscientious use of the dental equipment. It is possible that I have had an experience in dentistry that none of you have had. Whereas you as practising dentists have to do with a multitude of mouths, a multitude of dentists have had to do with my one, small mouth.

In moving about over the world as I have done for forty-five years, I have come in contact with perhaps an hundred different practitioners, all having their own ideas and their own methods, and at the time I arrived in New Haven last summer, I think my mouth was a veritable museum of the different attempts to make repairs. Of that I am going to speak a little later.

Preventive medicine has come into prominence within the past few years, and it has been growing in interest until we hear of little else. Institutes have been established and endowed enormously for the purpose of the study of preventive medicine, particularly along the line of bacteriology, but in my own experience in the study of the subject during the last ten or fifteen years, real preventive medicine has reduced itself to the simpleness of two details, mental and dental. With the use of these two attributes it is possible to do away with the necessity of other preventive medicine, so I believe, and the accumulated evidence shows that this is probably true.

Mine was an emergency case fifteen years ago. I was denied life insurance, and was not expected to live long, but it was at a time in life when I was beginning to think that I could enjoy life best. I was not at all satisfied to take the condemnation, and hence I took up my own case and attempted to work it out on the lines of practical objective study. I had faith in Nature. I believed that Nature intended that we should be well and strong, that we should live long, and that if we had sickness it was due to some indiscretion of ourselves. Starting with that hypothesis I began to take account of what my possible sin had been at the time. I knew that my troubles were associated with mal-nutrition, and hence I began to study the question of food as the underlying principle of the defect, and whereas my experience has been frequently stated and published, it is very interesting, because it is something that each of us may do in like emergency, that is, study the question logically, and go to Mother Nature herself.

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* Read before The New York Institute of Stomatology, April 7th, 1908.

I knew that if Nature had given us responsibility in the matter of our nutrition she had not given it in vain, that it must be before the food was out of our reach; in other words, before it was swallowed, and from that standpoint I took up the study of the question of what happens to the food before it is swallowed. I found text-books paid very little attention to the subject of buccal treatment and scarcely more than mentioned the buccal department of the alimentary canal, devoting but a few pages to it out of the hundreds of pages on other parts of the anatomy. I then made a list of what happens in the mouth in connection with the ingestion of the food, and in making the list naturally found that there was taste, feeling, smell, etc. I put down, in fact, all the things I could think of that happen in the mouth in connection with eating and then I took them up in order.

I first took up the question of taste. In order to study taste, it was necessary for me to keep the food in my mouth as long as possible, and in doing so, it was necessary for me to move it about in the mouth to find what the development of taste would be. In doing this, I discovered that not only did foods have a very much better taste than I had previously known, but that there seemed to be a mechanism of selection, or discrimination, so that at a certain time, in connection with certain foods, they were sucked up and swallowed without any volition on my part. I found it was impossible to keep food in my mouth longer than seemed to be necessary to prepare it for reception into the alimentary canal.

In a very short time, the mere attempt to find out the development of taste was the means of apparently curing me of several of the diseases for which I had been treated. I think it is not necessary to follow that subject very much further. It has been told many times. The result has been that during ten years of unremitting study of the subject, I have been growing better each year, more perfectly immune from the current diseases, and what is much more of a surprise to myself, and perhaps to physiologists, I have been growing stronger and more enduring and as yet have not arrived at the limit of such improvement. I speak of this, not in the way of boasting, because I represent two personalities; one the investigator, and the other the test subject; I am speaking of the test subject, and whereas I might give you evidence with regard to numbers of others who have been under observation outside of my own experience, I can best give you what has happened to myself, and this will be best understood when Dr. Anderson comes in to tell you the measure of my improvement.

In regard to dentistry as important in nutrition, my attention was first called to the importance of the subject by an incident that happened about six or seven years ago. I was in Venice at the time, and there arrived there a family from Australia, among them a very beautiful young woman, who was in the pink of condition, with the British pink cheeks, thoroughly active, thoroughly athletic. I was told that only about six or eight months before that time, she had been in a hopelessly invalid condition in Australia. They had been living in a remote part where there was very little opportunity to have good dentistry performed, and inasmuch as they were expecting to leave Australia, they had been putting off for a long time the repair work that they knew ought to be done, leaving it for a better opportunity when they came to America. Meantime the young lady was in a miserable condition of indigestion and dyspepsia. When they arrived in America and put themselves under the care of a competent dentist, it was but a very short time before the young lady began to improve, and with the completion of the repair work, and the ability that she then had to properly masticate food, her health was entirely restored, and it was almost like a miracle.

Recently my attention has been called to the fact that there is a great movement on foot now in various parts of this country towards employing dentistry in the mouths of school children, it having been found that forty per cent. or perhaps more of the children in the public schools are not in a condition to either enjoy or to properly masticate their food. The proposition has been made in Boston, and perhaps elsewhere in the country, to the

Boards of Education to have regular examinations made and repair work done at the cost of the government in order to lay a proper foundation for the health of the children.

I may say in the way of explanation that I do not represent the school of medicine or of dentistry, simply the school of the study of Nature. During the fifteen years of my study of the subject, I have persistently put aside all of the dicta of the text-books and have tried to put myself in close communication with Nature herself; and it has been a source of great gratification to notice how quickly Nature has responded to that sort of inquiry. No sooner had I begun to study the development of taste than I began to receive a joy of eating, a pleasure of taste itself, that I did not know existed. I had thought I enjoyed food, that I was a *gourmet;* but I did know what it was to really enjoy food, and the interesting part of it was that instead of looking for increased enjoyment from better mixtures, more complicated mixtures, among the French recipes, and in the expensive restaurants, I found that the whole inclination of appetite was in the direction of the simpler foods, until it became almost ridiculous, the simplicity of the demands of this new epicurean appetite.

One of the things I want to bring forward to-night, to a professional audience, is this: Some seven or eight years ago in a little book called "Nature's Food Filter," I described a mechanical process, a discriminating process in the back of the mouth which I called Nature's food filter. It is not necessary to refer to this description of the function, because it is more or less crude; but three or four years after that Dr. Hubert Higgins, who was the demonstrator of anatomy in Cambridge, studied it, with Professor Heger, professor of physiology at Brussels. The account of that investigation has been put in a book called "Humaniculture," by Dr. Higgins; but even that was necessarily an inadequate description, because it requires a long time to study such a complex question. After they had gotten through with their work, the report stated that the only way they could study the mechanism and functions adequately would be to divide the head in two, so that they could see the operation from a lateral point of view. Inasmuch as Nature does not assist in that sort of investigation, of course it was impossible to do it. The only other way to study this subject has been by means of the X-ray. I have discussed that possibility with Dr. Cannon, of Harvard

University, who has made such good use of the X-ray, and he tells me that the difficulty lies in the fact that the head is much more opaque than other portions of the body and it is extremely difficult to get an X-ray picture of a human subject, as in all probability the subject would be dangerously injured by the close contact of the X-ray. Dr. Cannon himself has suffered greatly, his hands have been more or less burnt, and it is considered a dangerous instrument with which to work. But it seems to me that the surgeon dentist, working in that special three inches of the alimentary canal, is in a position to study the mechanism and to bring out something that would be of great advantage to our knowledge of the subject.

I am going to make a little design of the section as it was made by Dr. Higgins and Dr. Heger, and ask if it is not possible that you in your study of the subject may not take it up. Without using the blackboard perhaps I can illustrate it in this way better. (Using hands for illustration.) The hand is a very good representation of the thin and thick parts of the tongue, this part of the flexible portion. This other hand may represent the roof of the mouth, the hard palate; the fingers also may serve to similate the soft palate hanging down behind. Now it has been found that during the process of mastication the buccal passage is a hermetically sealed cavity. That can be very simply tested by filling the cheeks with air, in this way, and breathing behind. If the closed mouth were not shut off entirely the air would be drawn out, but during the entire process of mastication, it is an air-tight cavity. The food is taken into the mouth and the process of mastication and insalivation begins. The tongue moves about and pushes the food between the teeth, and against the roof of the mouth. The mixture of the saliva with the food causes a chemical transformation which gives us taste. As insalivation progresses the food becomes alkaline, or neutral, or whatever is necessary to make it acceptable to the body. There is a furrow in the centre of the tongue, and the liquified food crawls along the furrow until it comes to this portion, the region of the circumvallate papillae where, even if the head is held down and the process is gone through with in that position, the liquified material will crawl up the tongue to the point of occlusion. Then if it is in a condition that is acceptable to the discriminating sense this closure is relaxed, and the soft palate hanging down behind acts like the sucker of a pump and draws the acceptable material back for swallowing. It has been shown that there is a negative pressure back there all the time, ready, the moment there is a relaxation to set up a suction and start the reflex deglutition.

The interesting part of this, especially to those who are not professional, is that it is only necessary to treat all food taken into the mouth, whether liquid or solid, anything in fact, that has taste in this simple way, and submit it to the action of the teeth, mixing it with the saliva, moving it about, tasting it as it were, until an involuntary swallowing action takes place. If attention is given to this nothing will go into the body that the body does not want. In fact, if there is not a need for the material that is being masticated, it will be rejected, and that is something which everybody can test for himself easily, with the very next morsel of food taken.

What I want to ask of the members of the dental profession is that they will study this question and find out what it is that excites this protective mechanism.

There is a perfect protection there—there is no doubt of that—because simply from the use of it we have succeeded in reducing food to the minimum and nourishing the body on a very much smaller amount than is ordinarily taken. We have also reduced the waste to a ridiculously small quantity, and the character of the reduced waste has been such that it may be considered aseptic. All the disagreeable features in connection with nutrition, associated with illness, have been eliminated simply by the use of this discriminating mechanism, and consequently it must be that it was given us as a protective instrument.

In considering the question as to what were the conditions which prevailed in the time of prehistoric man, we find that none of the foods that are provided by nature are in a liquid state, or in a cooked state or even in a mushy state. Everything that was food for primitive man had to be chewed out of the envelopes in which it was encased, and man was compelled, under these circumstances, to follow the natural requirements and satisfy the conditions necessary to get a perfect nutrition. It is only since foods have been mixed, have been combined, have been cooked, that the dangers we suffer have come to us. Really what we need, in our nutrition, is to protect ourselves against the luxury by which we are surrounded, against plethora. But through understanding the mechanism of this physiological function it is entirely possible to move about among all these luxuries, and as I oftentimes have said, we may wade about in clover up to our necks, and still not suffer from the danger of over-eating—the danger of excess.

There are two or three rules in connection with the tasting of food that it is desirable to know and to fix in the mind, and it is necessary to give attention to them for a short period—a period of a week or two—after which they will become fixed habits, when the whole difficulty of the proper ingestion and treatment of food will have been solved, and that detail of preventive medicine will have been satisfied. I am going to read to you Professor Chittenden's concept of the usefulness of the dental equipment, and also of the usefulness of a cheerful mentality in connection with it.

Mr. Fletcher read the following extract from Professor Chittenden's book, "The Nutrition of Man;" pages 23-24:

"With the mind in a state of pleasurable anticipation, with freedom from care and worry, which are so liable to act as deterents to free secretion, and with the food in a form which appeals to the eye as well as to the olfactories, its thorough mastication calls forth and prolongs vigorous salivery secretion, with which the food becomes intimately intermingled. Salivary digestion is thus at once incited, and the starch very quickly commences to undergo the characteristic change into soluble products. As mouthful follow mouthful, deglutition alternates with mastication, and the mixture passes into the stomach, where salivary digestion can continue for a limited time only, until the secretion of the gastric juice eventually establishes a distinct acid reaction, when salivary digestion ceases through destruction of the starch-converting enzyme. Need we comment, in view of the natural brevity of this process, upon the dissertation for purely physiological reasons of prolonging within reasonable limits the interval of time the food and saliva are commingled in the mouth cavity."

The importance of the mental part of it as mentioned in Professor Chittenden's work is best illustrated in the experiment of Professor Cannon, of Harvard. He employs cats, because they are easily trained, and hence he uses them for his investigations. When a cat has been starved until its appetite is keen, it is given a sufficient meal, but the food has been previously colored with nitrate of bismuth. The bismuth is opaque to the X-ray, while the body is luminous. The cat is fed a good meal until he is satisfied and happy, purring and contented. He is then strapped upon the flourescent screen. He lies there purring away merrily, and you can begin to see the process of digestion by means of the X-ray. You will see the shadowy food go down into the stomach, move about in the stomach, go along the fundus, and finally stop at the pyloric orifice. Some of it then passes on, and some remains in the stomach. All this is done smoothly, and continues as long as the cat is in a happy condition of mind. The moment his attention is distracted, the movements slow up, and finally when he is irritated to a point where he begins to spit, instead of purr, the whole process stops and there is no movement whatever. Under these conditions, it requires a long time to start the movements again. Once stopped, it is difficult to get up the necessary momentum, and palliate the cat as much as you please, it will be a long time before he entirely forgets his irritation.

The investigations show that when the food ceases to move about under the stimulus of the favorable mental state, the stagnation furnishes an opportunity for the bacteria to begin their deadly work, and this form toxic products that pass through the body in the lymph and blood streams, and throw down the bars to the current diseases, whatever they may be.

In addition to what I have read from Professor Chittenden I would like to call your attention to Professor Fisher's "Yale University Reports." His investigation was for the purpose of learning the true physiological economy in the nutrition of the individual merely through the use of his dental and mental apparatus. The investigation was carried on in order to ascertain how profitably it was possible to use them in the ordinary course of life.

During the second half of the experiment somewhat of a knowledge of food values was brought in, to see if knowledge upon the subject would affect it. There was very little difference in the results of the two parts of the experiments, but after six months of active experiment it was discovered, simply by following those rules, that about one-half of the food, measured by its cost, that was ordinarily taken sufficed to nourish the men. They were kept in the best of condition. They were entirely immune from sickness during that time, and the increase of their endur-

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ance was something phenomenal—more than 100 per cent. in many instances—and since these experiments have taken place, numbers of others have been carried on with similar results.

I am somewhat at a disadvantage in addressing you just at this particular moment, because I had expected to base my address upon what Dr. Anderson had to tell you, thinking that he was to make the preliminary address; consequently I have not been able to follow in the sequence I should; and I must apologize for having very inadequately presented my side of the subject. There are two speakers present whom I know, and whom I have come in contact with, who can enlighten you upon this subject as effectively as I can and perhaps more so. Dr. Anderson has observed not only my own development, but that of all the others, the soldiers, athletes and college men, who have passed under his observation, and he has been able to measure them in a way that cannot be discredited. Another promised speaker is Dr. Gaylord, of New Haven. We had a very pleasant session together last summer. I might say that for both it was a test of endurance. He found my mouth in a curious condition, with every sort of dentistry that could possibly be imagined applied to it. Nearly all had been done by American dentists. Some of them spoke Japanese, some Bengali, some German, some Italian, but they were all advertised as American dentists.

One of the interesting things that occurred in my experience with Dr. Gaylord was one particular day's test of endurance. Dr. Gaylord, I believe, is over the three score and ten age limit, yet while I sat comfortably in the chair for twelve hours, he stood over me doing all the work while I was resting and snoozing. When he gets up before you, I want to tell you that regardless of his age he is the most remarkable specimen of endurance I know. I am now going to make way for Dr. Anderson.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held Tuesday evening, April 7th, 1908, at the Academy of Medicine, No. 17 West Forty-third street, New York City. The president, Dr. C. O. Kimball, in the chair.

The President—We have all heard of the gentleman who is to address us this evening, have been interested in the history of his personal experience, and of the results he has shown. We shall hear from him to-night in relation to dentistry, for his subject is "Modern Dentistry as Preventive Medicine," and it will be his special business to show us, not so much how we are to preserve our teeth, as how we should use them. I take pleasure in introducing Mr. Horace Fletcher.*

The President—The discussion of Mr. Fletcher's address will be opened by Dr. Anderson, Physical Director of the Gymnasium at Yale University.

Dr. Anderson—It is my mission to set and keep men on their feet, physically speaking, and anything that will help to do this appeals strongly to me. I stand for physical efficiency and as nutrition has so much to do with diet I am very willing to say what I can to-night on Mr. Fletcher's experience at Yale.

In 1903, Dr. Chittenden, Director of the Yale Scientific School, a man of small stature but of great physical and mental endurance, a physiologist of international reputation, spoke of a wealthy American living in Venice who was attracting attention to himself by his novel methods of eating.

He dwelt at length on what he did not eat and what exceptional results came to him because of his methods. Dr. Chittenden spoke of the persistence employed by Mr. Fletcher in chewing his food; of the limited intake of nourishment and the very limited elimination of body ashes. He spoke of the great endurance of our subject, of his immunity from soreness and distress after exercise, and of the natural and willing temperance in the use of things that we are often too fond of. One thing that seemed to appeal to Dr. Chittenden was the good company in which he found our Venetian friend—Sir Michael Foster, the eminent English anatomist, and others. I could give many names. There were six leading English scientists interested in this particular study. After Mr. Fletcher came to this country Dr. Chittenden, Dr. Welsh, of Johns Hopkins, and others, joined the ranks of investigators.

Now, what are Mr. Fletcher's rules? First, eat only when really hungry; eat what appeals to the appetite, of the food that is available. Eat in the order of the attractiveness of the food. If the mince pie seems better than soup, elect mince pie. Chew until the food swallows itself. Taste all liquids, except water, as wine-tasters taste them.

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*For Mr. Fletcher's paper see page 227.

What were the tests Mr. Fletcher went through in the gymnasium? Lifting the heels, deep-knee bending, raising the hands above the head, stooping over and touching the floor, placing hands upon hips and bending to the right and left. Lying on the floor, raising the legs, then raising the trunk—each seventy-five times—these movements followed by a run. There was no after indication of poison in the muscles, no soreness, and the reaction was normal. Our athletes stood by and were amazed that a man whose hair is as white as Mr. Fletcher's could take this work with greater ease than they could.

We have carried on, in addition to the Fletcher test, other experiments. First, a group of five men of varying ages, connected with the University as professors and instructors, men who while leading active lives, were selected as representative of the mental worker rather than the physical worker.

Second, a detail of thirteen men, volunteer hospital corps, United States Army, men who for a period of six months took these tests in addition to the routine work. These men were of different nationalities and ages.

Third, a group of eight young men, students in the University, all athletes.

Fourth, a series of tests made with different men, in regard to their eating, who for thirteen days were under special observation at the gymnasium in January, 1903.

Fifth, a series of tests made of nine healthy students, not athletes, lasting from January to June, 1906.

Complete reports of these tests may be had on application.

The men made wonderful gains in endurance with no exception. There was, in some instances, loss in the strength tests. A few of the soldiers fell back, relapsed, but they did not collapse. One objection to the tests is that the soldiers when freed from this obligation went back to the full dietary. That makes no difference to us. While they were on the limited dietary they gained in strength and endurance.

I have noticed that men who "Fletcherize" lose their desire for alcohol to a great extent.

In connection with the tests given to Mr. Fletcher, I wish to mention the work of a Mr. Granger, of the Battle Creek Sanitarium. Mr. Granger follows the tenets of our principal speaker this evening; he is a young man of ordinary weight and height.

The average record for "deep-knee bending" is about forty, but Mr. Granger made a record of 5,002 without stopping—time about three hours—and manifested no after ill effects.

In Mr. Fletcher's own case the test that appeals to me with greatest force is his ability as a bicycle rider. On his fiftieth birthday he rode between 4 A. M. and 10 P. M. of the same day nearly two hundred miles and the following morning before breakfast rode fifty miles. Information of this kind will be weightier than a recital of the Yale Tests.

It has been said: "Mr. Fletcher was a good man before his collapse," true, he was exceptional, being a hunter, fisher, traveler, gymnast and athlete; true, he failed when about 45, and equally true he did regain his lost vigor at 50 and after regaining it he excelled in feats of strength and endurance.

I can not see that his having been a strong man detracts from the strength of the fact that he lost his energy and then regained it. It may have been a renewal of strength or merely an awakening of the old power, but the fact remains that he did renew his youth and that is what we are interested in.

If Mr. Fletcher can do this, others can, and if a man shows growing possibilities in strength and endurance after fifty and the weight of evidence is in favor of the method of making and assimilating energy from food, when we can profit much by this particular gentleman's experience.

There are two sides to the question—one says, "eat rapidly; the other says, "eat slowly." Who is right? Is there no referee in the case? Yes—the body itself.

We do not have to argue whether we are thirsty or hungry or sleepy, the body tells us and we know it. Now, why not let the body dictate as to the kind of food we should consume? If there is a desire for certain foods eat them, if not, then do not eat them.

Try this plan and let us have all the evidence we can gather from many sources. Such knowledge would go far towards settling one of the most important problems in life, i. e., good nutrition and how to secure it.

I appreciate the privilege of being called upon to discuss the subject selected for the evening. I am in sympathy with Mr. Fletcher in his efforts to help mankind by his sensible methods, and I wish to thank you for the opportunity of saying so.

Dr. Max Einhorn—I am very glad to make the acquaintance of Mr. Fletcher and I think everybody is. If Mr. Fletcher spoke only to healthy people, and for people who are in good health, that would be all right. But this principle cannot be kept up all the time, especially in disease. For instance, I will give an illustration: There is a condition in which the esophagus is dilated; the food lodges in the esophagus. If such people follow Nature they will die in a month, but if treated, they can be helped to live a long time. Sometimes there is a very simple means which helps them get over the difficulty. Nature could not overcome by itself. The food may be passed through a tube into the stomach direct, or so arranged as to come out from the esophagus into the stomach by any other mechanical means. I know a man who was treated for idiopathic dilation of the oesophagus. He is better now than he was sixteen years ago.

We cannot always say that we will leave everything to Nature. The physician should try to help Nature as much as he can. We will pave the way for Nature to get along. That is the right way.

Now, gentlemen, in regard to masticating the food. Certainly food should be masticated well, and a perfectly healthy person may safely follow his own inclination with regard to the amount of food he eats and the amount of chewing he gives it. There the appetite is a good guide; the natural inclination showing what is right and what is wrong. But if we have to deal with people who are diseased the case is very different; they have pains after eating; they have no appetite. If they should wait until they have an appetite, they get weaker and weaker, from lack of nourishment. Here is where the physician comes in and says the patient eats too little, and must not eat too slowly; but should drink milk by glassfulls, giving the body some nutrition. Later if the patient is strong he can be guided by his appetite, but in difficult conditions we as physicians cannot say we will let patients have their own way. That is often the wrong way. I do not speak from theory, for I see several examples every week. Mr. Fletcher is not a physician. If he would come to a hospital, I could show him every day instances where we could not safely say we will rely upon the patient's appetite and desire.

The teeth certainly play a very great part, and that is really the paper of the evening—dentistry as preventive medicine. That is really so; there is a great deal in it. Mastication of the food does not mean alone to bring the food into contact with saliva and to facilitate the conversion of starch into sugar. That is, I think, less important than the other point, namely: the mechanical breaking up of the bigger particles of food, because it is for this really that we have the grinding apparatus. If solid food is swallowed in big lumps, it is apt to be an irritant to the stomach, and people can suffer greatly from this mechanical irritation. The food is too coarse, and it is very important that the teeth should be in good order. I think it is certainly a great advantage that people who, from one cause or another, have been so unfortunate as to lose their teeth can have false teeth, so that they can chew their food well, and they naturally live much longer than did people years ago.

Now with regard to endurance. I do not doubt that Mr. Fletcher is a very strong man, and can endure a great deal but I think these tests are not enough physiologically. I would not take them as positive evidence of the fact that mastication alone plays such a part in increasing endurance. Dr. Anderson mentioned Mr. Granger, of Battle Creek, who can exercise and do so much work that we can hardly conceive of such endurance, and he follows Mr. Fletcher's method. I have a man in the country, a plain man who does the work on my farm. I once intended to build something, and went out to smooth off some pieces of wood. I tried to help him and wanted to enjoy a little exercise. I did it for five or ten minutes, but got tired and had pains a whole week in my arms. My man there goes on doing similar work from 6 or 7 o'clock in the morning until 6 p. m. This is hard work, and it would take a hundred men like me to do what he does in one day. He is used to it, but he does not follow Mr. Fletcher's methods. He eats a good meal, does not take pains to eat so very little! Many people are like that, too; but they would not say their method of eating gives them that endurance; it is their work; they do it all the time, and get used to it by doing the same thing every day. Perhaps I could do so, too, in about half a year.

This Mr. Granger, of Battle Creek, has probably gone through these exercises for years, and does, probably, hardly anything else, and that is the reason he can do this.

Now, gentlemen, with regard to the requirements of the body. Prof. Chittenden, Dr. Anderson and everybody else know very well that it is possible for us to eat too much, and I think a great many well-to-do people do eat too much; but the requirements for living are fixed. We must have a sufficient amount of food, and if we do not take that amount we will lose. In ordinary life if a man does not eat enough one day he eats more the next day. That is all right; it equalizes itself. But in diseased conditions, it is very dangerous to let things go along without intervention, especially in chronic diseases of the alimentary canal. These patients very often die, not so much from disease as from lack of nourishment. That is a very important point, and I think no physician should fail to know how much nourishment a patient or a healthy man requires.

Dr. J. Morgan Howe—I have been very much interested in Mr. Fletcher's address this evening, but it has not been the first interest that I have taken in Mr. Fletcher. I read two of his books over a year ago, and was so much impressed with the record presented there that I began to experiment on myself, and since that time I have, rather imperfectly, but with considerable persistence, pursued the method that he advises in preparing food before it is swallowed, and I have greatly benefited in digestion and in nutrition. I had not practised it over three weeks before I was conscious of very great relief from fatigue, from which I had much suffered. Since that time I have studied the subject of nutrition more than I had before, and have been a good deal puzzled over the subject in different ways, but still, as Dr. Anderson has said, the facts remain.

Now, the principal thing I want to say to-night is that I have to propose a new test for Mr. Fletcher and for Fletcherism. I have thought that this process of mastication and insalivation of food—affecting digestion and nutrition, as we are, I think, convinced that it does—that this process continued for a length of time probably changes the saliva and mucous of the mouth. In the change of nutrition the oral fluids very likely are changed to nearer a normal condition.

I think we dentists all believe that decay of teeth, erosion and the various destructive agencies which we are combatting all the time, are due to an abnormal condition of the oral fluids. We are helpless, almost, in our efforts to overcome susceptibility to these destructive processes. Various advice is given, which almost always resolves itself into greater care of the mouth, greater cleanliness, more cleaning of the teeth, taking off from them what sticks to them, and that is laborious and difficult. We have a saying, which is probably true, that a clean tooth never decays, but then we are faced with the fact that it is impossible Once in a great while we see teeth that keep themselves clean. I have to suggest that we establish or try to organize a research club among dentists here and everywhere that will undertake to persuade patients whose teeth are exceedingly susceptible to decay, to adopt Fletcherism, to test their saliva at the time, and to have them pursue it and test their saliva again at intervals. We would then see whether Fletcherism may not produce such a change in the fluids of the mouth as will tend to that ideal condition that we dentists are always looking for and so seldom find —a condition of immunity from decay and diseases that destroy the teeth. Some of us know something of the condition of the teeth of the masses, that the destruction is simply appalling. There are not dentists enough in any locality, if they devoted themselves to the preservation of the teeth of the people, to begin to touch the fringe of the great need that there is, and the suggestion that I make is that we test Fletcherism and see whether the practice produces a change in the oral fluids tending to that ideal condition of immunity from the dental diseases that are destroying the teeth of the people, even those for whom our best endeavors are rendered. The best we do even for these latter, is only to check and retard. I hope the Institute will consider this subject and see whether they think it is worth while to make an effort to discover what, if any, change results in this regard from the practice of Fletcherism. At present the number of patients that we can attend to is very limited and the amount of saving of teeth that we can do is very paltry compared with the great need that exists, and new enlightenment on the subject must come or the teeth of the masses will continue to go to destruction.

The President—We have with us to-night Mr. H. Carlton Smith, lecturer on chemistry at the Harvard Dental School, and I ask him for a few words on this subject which Dr. Howe has just suggested.

Mr. Smith—I came here as a guest of Dr. Howe and did not expect to be called upon. I have been very much interested in this topic which Mr. Fletcher has given, and the statements Dr. Anderson has made, and I am also very much interested in the suggestion from Dr. Howe to test the effect of Mr. Fletcher's practices upon the teeth and upon the saliva.

It seems to me that if something of this sort were done dentists would be killing two birds with one stone. Not only would they study to improve the teeth along the lines suggested by Mr. Fletcher, but they would also study the analysis of the saliva, which is a subject of growing importance, and I sincerely hope that some action of the nature that Dr. Howe has outlined may be taken by this body. I believe in all sincerity that this is the best body of dentists in this country to entertain work of this kind.

The dentists of New York, the State and other associations, have taken the lead in systematic research. You will pardon a suggestion, but if you take up work of this sort, it might not be unwise to instruct your committee to see to it that the work is carried on upon a basis of thorough scientific preparation. You have heard to-night of the work done in Yale University. That is scientific work. It is scientific work because records are made and the method is outlined with great care before the work is undertaken. That is what the dental profession is in need of, work done in that way, carefully outlined, and then careful adherence to the outline.

If a concerted movement can be started here reaching throughout the country which would be based upon a carefully devised plan, it seems to me it might be productive of a great deal of good.

Dr. E. S. Gaylord—The remarks of Mr. Fletcher and Dr. Anderson have taken a trend so different from what I had anticipated, that I find myself entirely at sea and there seems but little for me to do but to indulge in rather personal reference, for which I hope I may be pardoned. Mr. Fletcher has hinted, in view of the fact of his having had dental service in all parts of the world, that he possesses a mouth full of curiosities. Of course every dentist present (and certainly the ladies), have a desire to examine such an aggregation of curios; but I take some exception to the statement, and assert that he has thirty-two mighty good teeth. That I operated for him twelve consecutive hours is a fact, but he has very little knowledge of those hours and the only contention I have with him is, that he persists in keeping his mouth closed while asleep. The dental engine, with good-sized engine burrs, never phased him, and he asserts that it is the most refreshing slumber of his life. The teachings and writings of our guest are ever altruistic. He practices the things he advocates, which is admirably demonstrated by mouth conditions, and I am fully convinced this explains why there is so little sensation in excavating deep compound cavities. Prior to his taking up the theory and practice of thorough mastication he had pyorrhea, as evidenced by nearly obliterated pockets—no longer progressive—from the combined influence of mastication and consequent perfect nutrition. The response to prophylactic treatment in his case has been most gratifying, and as he presents himself before us as a representative of perfect health, it becomes an object lesson to us as professional men. We should investigate this subject by application to ourselves, and I am convinced no one who adopts the method as outlined in the several publications of Mr. Fletcher, will be content to return to the old regime either in selection of foods or pseudo mastication of them.

The President—Dr. Gaylord has brought up one point which we wished to have light upon in this discussion, and that is the effect upon Mr. Fletcher's own teeth of this prolonged and thorough mastication.

Dr. L. Duncan Bulkley—I am so constantly looking into the mouths of patients that I could not help saying a word to those who are practising dentists, and I most thoroughly endorse all that has been said by Mr. Fletcher. I want to say this is nothing new. As long as thirty years ago I would continually check the rapid eating of my children, make them pause and lay down their spoons before taking a second mouthful.

My horses in the country have been known to get sick and thin. I send for the veterinary surgeon, and what does he do? Simply files their teeth so that they can masticate. I do not know how many times he has run his heavy file on the back teeth, saying, "The horse cannot chew his food," and the thin horse would get well and fat and strong.

Another point Mr. Fletcher made, which is important, is in regard to our mental condition at meals. I happened years ago to see a young lady who arose from the breakfast table one morning perfectly well, and immediately went with me to see a surgeon who was to perform a slight operation for the removal of a small tumor from her eyebrow. We told her not to eat any luncheon, as she was to be put under ether. At half-past three o'clock in the afternoon, when under ether, she vomited a mixed quantity of food. She had not put a thing in her mouth since breakfast, but her breakfast was undigested. A perfectly healthy woman had been so affected by the nervous anticipation of the surgical operation that the food taken in the early morning lay there until half-past three in the afternoon without being digested. Who can doubt the effect of mental conditions? I endorse every word Mr. Fletcher has said this evening.

The President—I will now ask Mr. Fletcher to close the discussion.

Mr. Fletcher—I will only keep you a moment. I am sorry Dr. Einhorn is not still here. He spoke about the ease with which his man on the farm could perform his work, and confessed to the fatigue he himself felt in attempting to do any of the work. Up to ten years ago, I experienced the same inefficiency. For instance, if I were called upon in the Spring to do anything that was new, any new exercise, I suffered from lameness. If I attempted to play baseball, I suffered from lameness. If I threw a ball my arm was lame, and I think such is the experience of almost everybody not in training. To avoid this susceptibility to lameness is what the ordinary training is for.

All those who have practised taking food in the way I have suggested, lose susceptibility to soreness and fatigue. I think Dr. Gaylord will give evidence to that fact, and, for instance, the exercise Dr. Anderson gave me was calculated to test my condition in that direction. I am not in training. I do not take more exercise than Dr. Einhorn himself, because my work is practically sedentary; and still I can jump into heavy exercises at any time and not feel it; and not only so with myself, but everybody who has followed the practice has had the same experience. Instead of having to work hard to exercise the body in order to burn up the surplus of food, the appetite accommodates itself to the activities, and the subect simply takes in what is required, and there is nothing to be burned up. Without exercise one is always in training.

This is of great importance, because in the case of an emergency, if anything unusual has to be performed, something that is ordinarily over-fatiguing, the ability to do so without collapse or discomfort is there. Emergencies are cases where the unexpected happens. If you follow the natural requirements, and nourish the body according to those natural demands you are always in training, and always ready for any emergency.

The President—We owe a vote of thanks to Mr. Fletcher for this elucidation of his principles, to Dr. Anderson and to the other gentlemen who have come here to discuss it, and the Society will extend these thanks by a rising vote.

After a rising vote of thanks, the meeting adjourned.

UNION MEETING OF ALLIED SOCIETIES.

The Institute held a union meeting with the other members of the Allied Societies, consisting of the American Academy of Dental Science, the Harvard Odontological Society, the Metropolitan District and the Boston and Tufts Dental Alumni Association, Tuesday evening, May 5th, 1908, at the Hotel Flanders, New York City.

The President of the Institute, Dr. Charles O. Kimball, called the meeting to order and presided during the evening. The Secretary read the minutes of the last meeting of the Institute, which were approved.

The President—First let me say a word of welcome to these, our friends, who have honored us so highly by coming to New York to attend this meeting of the Allied Societies. It is one of the pleasant things of our Alliance that it brings us into touch with such men. I was asked to say a word or two in introducing the subject of the Alliance as our bond of union. Boston people take hold of things very quickly. Their perceptions are keenly on the alert. I heard a story of a Boston cabman who showed his quickness of wit. A gentleman got out at the depot and hailed a cab. The cabman said "Where to?" The gentleman said "I do not remember exactly, but the name of the place sounds like "whiskey straight." "I understand, sir," said the cabman, and drove him to Jamaica Plain. I do not think our New York cabmen would have done as well.

In New York there is but one society a member of this Alliance. In Boston there are four. This seems to me to show something of the Boston character for independence of thought, and for a general ease of getting together. An alliance, as you know, is not a union. Each corporation or organization entering into an alliance loses nothing of its individuality. Our alliance takes nothing from our privileges. It is a union for a certain purpose, for furthering certain interests in which the various organizations are directly concerned; and so our association is truly an alliance, not a union. We are separate societies, each with its own separate work to do, its own peculiarities of government, and its way of working out its own problem. There is the outward voice by which we speak our thought to the world, the Journal. Then there is the opportunity of influencing others outside of our profession, and that might be illustrated as well as in any other way by the movement started in Boston since our meeting last year, in reference to the teeth of the public school children. One of the results of that meeting was the sending to all secondary schools of New England, some four or five hundred, a little pamphlet suggesting the care of the teeth, urging that in their course of instruction, children be taught to take care of themselves, and that opportunity should be given for that purpose. We have had some very interesting correspondence from those who have received that circular. The circular went out not in the name of The New York Institute of Stomatology, but in the name of the Allied Societies—all who participated in the meeting last year.

We have here in New York, as you have in Boston, the problem of the care of the teeth of the poor. Such problems come properly not before one society, but before all the societies. That leads me to speak of our own city and its needs. We have in Manhattan four strong societies, and one in Brooklyn. The First and Second District Dental Societies, which are the ordinary county societies, doing excellent work; the New York Odontological Society, which has aimed from its inception at a little more scientific work perhaps; then this Institute of Stomatology, which has endeavored to broaden the field still more and take in the whole realm of stomatology. Added to that, there has been a certain social element in our organization, in view of which we have carefully selected those to join with us, and have gotten together a body of men with whom it is a pleaseure to meet socially.

Then the youngest society of all is the Institute of Dental Technique, with its work directed more towards the practical side of our profession.

These societies seem to be like stout rowers in a boat, each rowing for himself, the tall man with a long slow stroke, the short man with a quick, energetic stroke. What progress is made? Let the four get together and pull with one pull—for a journal, for instance, all united in the publication, as you are in Boston; then another pull for care of the teeth of children in the public schools; and another pull for the helping of the poor. What a different result! You see how much strength we could add to our work in this city, if we could have here an alliance of some kind between all the societies. I see men before me, representing all these societies, and we honor them all. My plan is that we, in New York, shall do something as you men in Boston have done. We honor you because you have managed to get the idea of union into your minds, and have increased your strength a hundred fold by the fact that you work together.

Now, men of New York, can we not do something like that here, without surrendering our individual ways of working? Can we not have some form of alliance? Could we not all unite, for instance, in the support of some journal like this, which shall represent the ethical teachings of our profession, and endeavor to bring our spoken words into harmony, associating more together? Surely our words would go to the world at large with a much stronger voice if we would all call together.

I will invite Dr. George C. Ainsworth, president of the American Academy of Dental Science, to speak for the Boston Societies.

Dr. George C. Ainsworth:

Mr. President and Gentlemen of the Allied Societies Supporting the new Journal—I do not propose to occupy much of your valuable time. I desire, however, to say that it affords me much pleasure to be here this evening and to bring to you the cordial and sympathetic greetings of the American Academy of Dental Science of Boston, which I have the honor of officially representing.

We are striving to do our part to maintain dentistry on the high and liberal professional plane it should occupy, and regard the New Journal as a very important step to that end.

We desire to congratulate and thank you gentlemen of The New York Institute of Stomatology, for the able and painstaking service of love you are performing to that end. We appreciate the fact that you are the power behind the movement and to accredit you with most of the glory. It is now, always has been, and I suppose always will be a fact, that such labor as is performed by the Journal management, will be performed by a comparatively small number of men, who seem by inheritance and education best suited for such work. Yet gentlemen, while we cannot all be efficient editors, we may have talents in some other line, and we are determined to do our part in our own way. to help maintain the high and liberal plane as exemplified in the Golden Rule. We have no secrets and what we can do to help our worthy brother to a more efficient service to mankind, we are only too glad to do. Inspired by the enthusiasm of a few men, we have, in Boston, entered upon a crusade for the education and better care of the mouth and teeth by the masses.

To that end representatives from our different dental societies have been appointed and designated as a "Dental Hygiene Council," which meets once a month to devise ways and means of bringing the subject in an interesting and convincing way, before the public, mainly through the public schools.

Circular letters, together with sample copies of a duly prepared leaflet on the "Care and Use of the Teeth," are now being sent to the superintendents of public schools throughout the State, advising them of the movement and asking their co-operation. Already many requests have been received for quantities of the leaflet for distribution not only in schools, but in institutions and at least one department store has distributed 600 copies among their employees.

Besides, we have, during the past week, thrown open the door to an exhibition of charts, models, photographs, etc., designed to bring home, in a forcible manner, the great importance of a clean and healthy mouth.

What we most desire to instil into the minds of these people is the fact that clean teeth do not decay, and that if they would take advantage of the means at hand to give their own mouths that intelligent, painstaking care, which is possible, they would save a large percentage of the pain and expense they would otherwise be subjected to. Besides the lowering of their powers of resistance to an inestimable amount of disease and suffering.

The President—We will now hear from our beloved friend, Dr. R. R. Andrews, on the importance of original investigation.

Dr. Andrews—It affords me a great deal of pleasure to be here to-night, and I know I can speak for all who came from Boston. When I heard of the invitation, I said to myself, "I must go" and I know others felt the same way, for we always look forward to meeting the members of the Institute with pleasure. I feel honored by your invitation to speak and wish I had prepared a written address. I feel something like the Irishman whose friends were riding him on a rail. They asked him how he liked it, and he said: "I am very uneasy, and if it was not for the honor of the thing, I would a darn sight rather walk."

Now in regard to research work. I was reading a little while ago, of a Mr. Burnham, of Chicago, in one of our journals, who became interested in astronomy, and commenced to study the double stars. He bought a cheap telescope, and searched the heavens. He is a clerk in the courts of Chicago, but to-day has a noble record, having found more double stars than any astronomer now living. He would work in his observatory, which he made himself, after hours; he made an honorable name for himself and his work is known the world over. I also wish to call to your attention that wonderfully beautiful work, which our friend Bromwell has been doing, the dissection of the germs of the teeth, from the jaw. Only a few years ago I made the statement that after the saculus was formed and the dentine and enamel germ was in its follicle, all dental growth took place within this follicle, that there was no evidence of blood vessels at its base. He also found there was no blood supply from the base of the follicle. That goes to show how intimately connected the pulp and the periosteal tissue must be. After the tooth is fully matured, there is a blood supply through the artery above or below; but in its early formation, the blood supply comes from another source.

There is a question arising here which will need a good deal of investigation, and I hope some one will take it up, in regard to the pulp, and the periosteal tissue. We all know that if there is a diseased periosteal tissue, there must be a diseased pulp, and when the pulp is once diseased, it is better to destroy it than to try to save it. Although I am a stickler for the saving of the pulp, there is no use trying to do so, if there is diseased periosteal tissue.

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Another subject which might profitably be investigated is the influence fillings have on the integrity of the pulp. Irritations caused from fillings, have a very marked influence on the pulp, and if they are in the region of the gengival border there may be irritation, through the tubuli, to the pulp and as a result there is secondary calcification formed. A calcified mass is then bulging in on the pulp tissue, and it is a question whether the obscure neuralgias and dental troubles, are not more often due to these causes then we think. Not only is there this effect on the pulp, but the blood supply is stimulated and irritated so that islands of calcification are sometimes formed within the pulp tissue. I believe that many pulps we think are normal, have these calcifying islands within their substance and this is a pathological condition.

Another point which might be investigated is the fissure formations of pits between cusps of teeth. Why is it we have so many large approximal cavities? May it not be the fault of the dentist in neglecting to operate soon enough? We should make our examinations with a delicate and sharp explorer, and if it catches at all, in the fissure, between the cusps of the teeth, it is time to operate. We cannot begin too soon. I have made a number of sections of teeth, and have often found that the tissue under enamel which is almost intact has been acted upon by the acid of the germ which had given off lactic acid, and had largely softened the tissue within. Many of us in drilling these pits have been surprised to have the instrument drop into a cavity much larger than we suspected. It is our duty to fill those pits at the earliest possible moment, that we may prevent the formation of large approximal cavities. Another important thing is to encourage the workers. If a student has commenced investigation in any special direction, and is earnestly trying to do something, encourage him in every way. I remember my own case. I commenced, I think, in 1869. Soon after that, a drummer from one of the dental houses came in and said he had a small microscope costing about $5. They had three or four of them that they had not been able to sell, and he wanted to know if I would take one. Wishing to see what some of the plants in my window would look like, magnified, I said I would take one to pass away time, while waiting for patients. I examined the structure of plants as well as I could with such a small microscope, became interested, and then purchased a larger one, and made some plant sections. I took these into a society just then forming—the Boston Microscopical Society, and in this society I met Dr. David Hunt, of Boston, who was investigating the eye and the ear. He said to me, "I have some material here which I am not using and I think it will interest you. I can give you that portion of the head that will show you how the teeth are formed." He gave me the jaws of some embryonic pigs and I commenced my studies, growing more and more interested, and finding the need of larger and better instruments. I shall never forget his encouraging words. I spent a good deal of my spare change purchasing proper instruments, and they were more expensive at that time than now. In 1871, I think, I commenced the study of the dental tissues. The books I had read told about the old theory of Goodwin, that the tooth development took place within an open groove. I had learned enough from Dr. Hunt to know how to prepare tissue, and I could not find any teeth forming within an open groove. In the early days the reagents were used so strong that they washed out all the epithelial tissue. I found in working with Dr. Hunt's later methods, the epithelial tissue covered over the dental germ and was no open groove. I became interested in other dental tissue, the dentine and the enamel, and used to investigate after my day's work was over. Research work is very fascinating, and if my experience is worth anything, I can say it is the most fascinating work one can do. A little bit added to what we know, makes a little bit more—a little exact knowledge, worked out yourself—may show you that some things in the text books may be misleading.

In regard to the enamel, I was some three or four years studying this tissue. We know we cannot see the formation going on within the enamel tissue, because it is dead tissue; but if we study section after section, we will see the different stages which have taken place. I found it not as the authorities stated, the calcification of the cell itself, but a substance or globule, within the cell was forming the enamel, and I not only told that at Berlin, but demonstrated it, for the first time, I believe.

That was all very pleasant and fascinating, and the field is so large that any of the young men who go into it (for it is a work for young eyes, not for old ones), will find it very interesting. It is too much of a strain for the old optic nerve, and if I work two or three hours at night now, I have a bad headache the next morning.

There is a gentleman here to-night, one of our Boston men, who is investigating the crystals of the saliva, and is doing most excellent work. I want all those who know him, to encourage him, and help him, and we will have something for our journal which will be a credit to the Allied Societies and our Journal.

I trust the younger men will take hold of this matter, and give us the result of their investigations.

The President—We will now hear from our friend, Dr. Taylor, on the advertising problem.

Dr. F. T. Taylor—The advertising problem, which has been given to me to speak about, is eminently a practical, business question. I am not an advertising man, and I take courage from the fact that those around me are not and probably know as little as I do about it.

This Journal is a child of our own heart, and we think a good deal of it, but the average business man, when asked to advertise in it, says: "What is your circulation?" When you tell him we printed 1,000 copies last time, it does not appeal to him to put his wares before the business world, or even the dental world. We have one of the things he wants, and that is quality. If we can get enough people to read this journal, we will have no trouble in getting business men to put out their money to advertise in it. The Journal is now supported by the Allied Societies. I cannot speak for the New York Society, which originated this thing and naturally have it closest to their hearts, but I think the majority of the members of the Boston societies who are now in it, if they once feel the financial pinch, will be very hard to keep in line. Sooner or later we must get this journal on a basis where it will be a business proposition, supporting itself, and the first thing, financially, is to get a circulation.

In Boston, those who have taken this up have succeeded in getting four Boston societies interested in the movement, and one section of the Massachusetts Society, situated in Worcester, has also come in. There are five societies from Massachusetts, and but one from New York, which is too bad. There should be more from New York, and more from surrounding States. We have been making a strenuous effort to get the Massachusetts State Society. At the meeting in June, there will be a strongly concerted effort by the Metropolitan District, backed by the Central District, to influence the State Society to support the Journal. Perhaps after that we can branch out outside of Massachusetts.

When our circulation gets larger, our advertisements will come easier. An effort has been made lately to increase it in Boston, by taking advantage of the machinery already provided by one of the independent supply houses, that is, one of the houses not interested in the publication of a journal. Dr. Lindstrom has originated the idea of getting the house referred to to send out with its advertising matter a leaflet, which reads something like this:

"For the profession—by the profession.

Hereby we extend to you the privilege of subscribing to the Journal of the Allied Societies, the only publication of its kind. This is the opportunity to show your loyalty to the profession. The journal is a quarterly supported by the following societies:

(Here are named the five societies.)

Underneath is a regular subscription blank to be filled out. These are sent broadcast all over New England, calling attention to this journal. Then their traveling men go around armed with a copy of the Journal, and bring the matter home to the men on whom they call. This will start their attention, and we hope many men will come in, pay their dollar a year, and help support the Journal. It is my dream that sooner or later the dental profession can become organized on the same lines as the American Medical Association. Any man capable of becoming a member of his State society may become a member of the American Medical Association. He pays his dues and gets the journal. That magazine has an enormous circulation. It is independent and free, and its circulation not only entitles it to get all the advertising matter they want, but also to discriminate as to what they get. We have discriminated in our journal, too, I am proud to say, but we have not yet gotten all we want. I hope that in the near future the profession may be organized like this, and take up the work of an independent dental journal. It is necessary, if we want to breathe the air of freedom. Why it is that Boston has four societies to one in New York, I cannot explain; it may be that the spirit of Samuel Adams, James Otis and John Hancock still survives in Boston. It may be that Boston has become what the newspapers have called us—the Irish Boston—but it makes us want to be independent and support the independent movement.

The President—It gives me pleasure to present Dr. Samuel A. Hopkins, of Boston, who will also speak upon the work of the Allied Societies.

Dr. Samuel A. Hopkins—As we look over the world's work and the world's progress we find how imperfect humanity is and how easy it is to resort to motive desires and passions that are allied with a crude and only partially civilized state of existence. We find for example, that our aggressive President of these United States asks for important additions to our navy and we are compelled to acknowledge that we are living in a condition of armed neutrality toward all other nations. We are sorry to admit that the restraining factor is not brotherhood or humanity but too often selfish interest. The feeling that we do not dare or cannot afford to impose upon our neighbors or deprive them of their rights is stronger than the nobler feeling of a generous desire to conserve the rights and well-being of others.

In a broad way mankind knows the right but our mental and moral vision is myopic and astigmatic. Congress knows that a broad policy which will help nine-tenths of the country is a wise policy to adopt, as counted by years, but the statesmen who represent the other tenth will prevent the adoption of such a policy because of some real or fancied injury to the States they represent, and the action of our government and every government has come to be a series of compromises and concessions. In spite of this, in spite of the fact that occasionally bad measures retard progress, we do advance and grow in wisdom and righteousness and manhood.

In our societies there is much honest difference of opinion. There may be, on rare occasions, an unwillingness to treat all questions in a simple, direct and broad-minded way and we are delayed in reaching our goal and grasping the truth. Why is this and how shall we overcome this difficulty so that we may discriminate quickly between that which makes for advancement and that which retards our progress; and, seeing clearly, put aside all petty and individual wishes and grasp that which is best? It seems to me that that is the basic problem which must occupy the minds of our Allied Societies and the solving of this means much to our profession. A few years ago our Metropolitan District Society, which is the largest and most important branch of the State Society, contained many inharmonious elements, and some of the gentlemen here to-night can remember some bitter fights and unhallowed bickerings. To-day, I am glad to say that, while honest differences of opinion are freely voiced on every subject, there is no selfish blocking of the way when measures for our general good are proposed. This has been brought about by the sacrifice of our officers and committees, who have succeeded by their singleness of purpose and their high-minded devotion to the best interests of the society, in winning the confidence of all its members. To-day the Metropolitan branch not only conducts its own meetings and gives to its members the best talent obtainable but it weilds a powerful influence for good in the other branches of the State Society and holds up ideals for their inspiration and guidance. We have interested the more obscure members, who are wont to hide their lights under the proverbial bushel, by giving them an opportunity to make suggestions for the Society's improvement and by putting them on committees. We have interested the Society in the work on the teeth of the poor and of public school children. We are leading them out of the bondage to the Dental Supply Houses and setting up higher professional ideals to stimulate their ambition and their professional interest. The independent journal has had important influence in giving us a common ground of meeting and concentrating our interests. Dr. Merriam has enlisted the interest of a number of men and has worked indefatigably himself in getting together important information as to the cost of dental supplies and where such supplies can be purchased. In due time we will have a very complete list, which I hope will be published in the Journal, of where almost everything a dentist needs can be purchased of reliable houses at a fair cost. This is not intended in any way as a blow at Dental Supply Houses but is intended to enlarge our knowledge and give us the best and broadest opportunities of helping ourselves and our brother dentists in getting the best of everything in the market at fair prices. Another matter which we are trying to carry through, is to interest our members in scientific research work. Committees have been appointed to study and report on the human saliva and other subjects of vital interest to our advancement. A movement is on foot for the establishment of classes under competent instructors who shall demonstrate the practical working of new devices and modern inventions. Arrangements have been made for clinics to be given by members at their own offices and upon their own patients, so that by intermingling we may enlarge our knowledge and gain new skill. We have tried to influence our State Board of Dental Examiners. Our board in Massachusetts is an excellent one and our standards are high. Our effort has been to keep politics out of this department and see that the State and the profession have the best services of the best men. While we have not been wholly successful in doing all that we wanted to do, our society and the societies allied with it, have exercised sufficient influence to be counted as a very strong moral force and that influence has an important bearing on the action the State board.

Now, it seems to me that aside from the practical matters which we present to our members, the work of the Allied Societies must be chiefly devoted to the allaying of personal and fractional grievances and desires, to the end that we may become more united and develop character and ideals. The fact that the society is greater than the individual must be taught. High ideals of professionalism must be stimulated and encouraged. We must be tolerant of the less fortunate members of our societies who practise among patients of limited means and who find almost insurmountable obstacles in their efforts to do what they realize is best for their patients. They, more than any others, need the encouragement and help of our societies and they should be able to find the inspiration they need at every meeting. They must be encouraged to bring their troubles to the meetings that they may go away stimulated and strengthened by contact with their professional brothers. We have no end of skilful operators and clever mechanics in our societies, and we need every one of them, but we also want men of character who are willing to sacrifice their time and money to develop the highest ideals of professional conduct. Above and beyond everything else, we must not forget that we are put here to serve our fellow man and that our work in life has no other aim but to improve the condition of humanity. Our living must be an incident and not the chief object of our practice. A single-minded devotion to the needs of humanity and a fixed purpose of supplying those needs to the best of our ability, must be the power behind each man who practices this exacting profession, and it must be the chief business of our societies to preach this gospel. Co-operation we must have and such meetings as this mean much in cementing the bonds of brotherhood and adding strength to a united movement for professional advancement.

The President—I will now ask Dr. James R. Piper to speak upon the subject "A New Dental Journal."

Dr. J. R. Piper—During an interview with one of the heads of a large dental supply house, I handed him a copy of our Journal and he happened to turn to the advertisement of a house offering to sell gold solder a little lower than any of the regular dental supply houses. He remarked that his house could not compete with the one represented in the Journal, and intimated that the goods here advertised would not come up to the standard. He also stated that on account of scientific work done by our own chemist, the sale of certain materials, for which his house is agent, had been injured. What our chemist proved to be theoretically true, was later borne out in practice. The result of this interview substantiates the opinion that the primary object of a dental journal published and owned by a commercial house is to put the advertising matter of that house into every dental office that journal enters. In order to do this, the magazine is made as attractive as possible. This is the true reason for the existence of those magazines which have done good, but not the best work. In publishing a new dental magazine we reverse the order of the so-called trade journal, and put into the hands of every dentist in the United States a periodical of their own: making the text the prominent feature, and the advertising a source of direct income; thus giving to our members not only the truth but the whole truth, if it will be to the advantage of the profession and the public.

When a paper is read before our societies, that paper will not be garbled when it appears in print as several valuable papers have been during the last few years. The Journal will encourage original research work and I hope in a more substantial way than by a mere mention in print. It will not only publish the best papers the Allied Societies may furnish, but from time to time will review articles gleaned from other journals and societies.

I hope we may have correspondents in England, France, Germany and other foreign countries, each one giving us in English, from time to time, a resume of the important dental news of the country he represents. Dr. Jesson, during the last few years, has been doing a grand work in School Dental Hygiene in Germany but our dental journals have said but little about it, and why? Because School Hygiene does not appeal to the trade house, but it does interest the dental world, and to the public it is a move far more sweeping than we now realize.

We will have departments in Chemistry, Pharmacology, Materia Medica, New Filling Materials, Appliances, and a review of new books that may have a bearing directly or indirectly on our work; in fact, a broad liberal work that we will not only be proud of but every dentist will feel he has missed if he has not seen the numbres as they come out; something that professional men in other fields would like to adapt to their own official publication the same as we may adopt certain principles of the American Medical Journal. I am sorry to say an enemy has come into the camp of that journal and murmurs of dissatisfaction are beginning to be heard as to its direct management. The word so prominent of late years, "graft" has entered their midst, which insinuation, we believe to be untrue and the result of petty jealousy. They have organized a splendid work and one that must go on. We are about to do the same good work but let us lay the foundation so deep and so broad that it will be impossible for politics or graft to enter our ranks.

The Journal will print in its advertising pages a cut or description of instruments that are not only what they represent but that will do what is claimed for them, and only those medicines whose formulae have been made known to the public. Not only will we have the dental supply houses represented in our advertising columns, but other houses furnishing goods used by men in other lines, whose work, much of it, is so near to some of our own that the instruments and tools used by them may be used by us to our great advantage. In fact, our advertising columns will be open to every reputable house having goods of any description that will be a benefit to our profession and patients. We all know there are men among us, who, perhaps, think as much of the advertisements a dental journal carries as they do of the text, and we want to satisfy that man not only by giving him what he wants, but in the hope that he may find the text of the magazine equally interesting and much more elevating.

In this work we are encouraged by being told that an independent journal is no new venture, that it has been tried before and failed, and that our journal will meet with the same sad fate. We reply that we are better founded that an independent journal ever was; that we are self-sustaining and our courage is good, but like all young growths we have much to go through. In the words of Kipling "They say youth is a season of hope, ambition and uplift; that the last word youth needs is an exhortation to be cheerful." Just now we are endowed with only sentiment and courage, grand to have and which must be maintained throughout the life of the undertaking, but we must also have money with which to carry out the various departments outlined for this journal. Many ways have been suggested but, gentlemen, should we place the advertising department exclusively in the hands of an individual or company manufacturing or selling dental goods, it would be the first step towards breaking down the principles we have been trying so hard to maintain, and upon which we are founded. We then become nothing more nor less than another trade journal under the pseudonym of The Journal of the Allied Societies.

Let us put men of enthusiasm and ideals into every dental society who will present our work with such convincing proof of our earnestness and the great value to be gained for the profession by having our own publication, that all dental societies will join the alliance as four of the Boston societies have done. Thus, in a short time we will have a circulation of five thousand copies, commanding the attention of every business house having goods to sell. Five thousand is a big circulation for a periodical appealing to a limited class.

Some one has spoken of emulating the example of Eleazar Palmly, Elisha Baker, Solyman Brown and their co-workers. The same spirit which actuated these men to do their good work in the dental profession is found in Drs. Truman, Allan, Andrews, Potter, and a score of others and with their help we shall push on to a successful issue of a Dental Journal, of the Dentists, by the Dentists, and for the Dentists.

The President—We have completed the formal list of speakers, but as the evening is still young, we should be very glad to listen to others who are interested in the subjects of the evening. May we hear from Dr. Lindstrom?

Dr. C. R. Lindstrom—I was just congratulating myself that at this meeting I had no responsibility as to the program, and was giving myself up to the enjoyment of it. However, I wish to extend my congratulations to the Institute on the birth of this new child—The Journal. It certainly has a most respectable parentage, and should "make good." I am quite convinced that it has a great and useful future before it, because it has back of its inception an impetus given no other journal and this is the love of our profession.

Every dentist throughout the ranks, when he learns of its existence and its purposes, ought to subscribe to it as a matter of professional pride, if for no other reason. But there is a better motive than this which I trust will actuate many, and that is that through this medium, we are to preach and reach the higher ideals we have spoken of here to-night. To accomplish this the Journal must have a much larger circulation, to increase which we should all be willing to work. Large circulation would mean larger income with which to employ an editor to relieve those now in control of all this hard work, and he would keep us in touch with the work of the profession throughout the dental world.

I think we should be vitally interested in this work not only as societies but as individuals. Every member of these Allied Societies should feel it a privilege to take a copy of the Journal to his neighbor, tell him it is for the profession, is necessary for it, is published by it and should be supported by it.

Each succeeding number has shown marked improvement. If this growth continues, we need not feel apologetic for it at all, but can take it to the next man and urge his support in the full consciousness of the real worth of the Journal. By doing this we can very soon increase the circulation largely."

Dr. R. Ottolengui—If it would interest the Allied Societies to know how to get the advertising desired, I think I can give the information. In the first place, while a large circulation is some help in obtaining advertising, that is not the only way to get it. I happen to have been acquainted with a very similar movement, which was a success, so the plan I am going to speak about is not a theory, but was tried and was successful. A circulation of 1,200 has been mentioned to-night. The journal of which I am speaking had about 1,800. That journal I believe is still published, and is called the "Brooklyn Medical Journal." It was inaugurated by an alliance of various medical and pharmaceutical societies, in Brooklyn. They decided to have a medium for the publication of their own transactions, under their own management and control, and it was agreed that in proportion to the membership in each of the societies, any deficit that might occur would be met pro rata. The plan I am going to speak of was so successful that there never was a deficit.

The business management of the journal was put into the hands of one of the younger medical men, and I believe in lieu of salary, and yet in order that he might have an income which would be an incentive, he was to receive a certain percentage of the gross receipts he might obtain from the advertising, and it was through my intimacy with this gentleman that I know these facts. He found, as Dr. Taylor has evidently found, that the first question usually is, "What is your circulation?" He met that in an unexpected way, and said, "Our circulation is Brooklyn." He explained that what he meant was this—the main difficulty which the large advertiser has, is to determine whether or not he gets anything back for the money invested. The advertiser was told if the journal had a widespread circulation, it would be difficult to know whether he was getting any returns from that particular advertisement, but if he advertised in the "Brooklyn Medical Journal" and received a large number of orders from the Brooklyn men, it was easy to determine whether it was a paying investment. Then he put this plan into operation. Selecting such an advertisement as he thought would be desirable, he would notify the advertiser that he wished to publish the advertisement once, gratis, in order to prove that it would be a paying investment to put it into his journal. He then notified all of his readers that he was taking this advertisement on trial, and if they could conscientiously patronize this advertiser, they should do so; and the result was, the advertiser continued his advertisements.

The President—We thank Dr. Ottolengui for his practical suggestion. We are in the field to get light, and to spread it, and shall be glad to hear from others.

Dr. R. T. Moffatt—On this same general line, the "Dental Cosmos" has found it to their interest to supply the students in the dental schools with free copies of the "Cosmos" as long as they remain students. In that way the White Company gets in touch with the student body, whom they later expect to be their customers. It would seem to me desirable to send copies to the students in the schools, and in that way introduce our work. It might be impossible to send The Journal to all students, as for instance, all the students in the University of Pennsylvania, but the plan might be tried in some way. We might have a printed list of the members of the societies who are upholding this work, for the interchange of patients occasionally. Many of our patients travel some, and are constantly asking for names of men in different cities, and if we could include such a list of ethical practitioners abroad, it would be very useful indeed.

President Kimball—The Institute publishes its membership yearly containing the names of over 250 ethical men, many of them abroad.

Dr. F. L. Stanton—I am a member of the younger society—the Institute of Dental Technique and I heartily approve of what has been said here to-night. This is the first time I have realized that the Allied Societies would be in favor of having another Metropolitan society unite in this movement. While I do not speak officially, I am sure all our members are in accord with the work and if these Allied Societies wish the Institute of Dental Technique to go into it, I shall use my personal influence to have them do so. There is another journal published as a free and independent magazine, under the auspices of the Alumni Association of the Angle School of Orthodontia. We do not have advertisements, and we believe a journal is better off without them. The plan we adopted is as follows: We issued non-interest-bearing certificates which we sold at $5 a share to each member. That stock is to be redeemed when the journal is on a paying basis. We have explicitly stated we will not take advertisements. We believe there are enough professional men to support a journal published in the interest of Science.

Dr. E. A. Bogue—Will it not be advisable to officially invite the New York State Society to join us. Perhaps there may be members there who, like Dr. Stanton, do not know that the Allied Societies are publishing and supporting a journal which is entirely independent. I think if it were known among the reputable societies that such a movement as this is on foot, we should be very likely to received additions to the Allies that are mentioned on the title page of our journal.

The President—I would like to see every one of our New York societies sharing in our work, and allied with us in the conduct of the Journal. Each society has its specific work, and is doing it well, but an alliance on such lines as these—in the publication of our thoughts in an independent journal—in the spread of dental knowledge among the ignorant—in the stimulation of charitable work among the poor—along those lines we may rightly join and help one another, and do somewhat the same work in our city that is being done in Boston. There is good work being done here, but it would be stronger and better if we all joined together. Gradually we may hope to secure the co-operation of societies all over the world. I feel sure that all members of the Allied Societies would gladly welcome the co-operation of the New York State Society, the Institute of Dental Technique and any other ethical society. We hope and trust that they will unite with us.

Dr. Bogue—It is pretty well known that we have something like 30,000 practising dentists in the United States, and that the National Association has only about 800 members. Those 800, who represent the 30,000 are represented, I think, by only about 200 present each year at the meetings.

Dr. Wheeler—There were over 600 at Buffalo last year.

Dr. Bogue—I have never seen that many at any meeting. Those 200 are represented by an Executive Council, and that Executive Council is dominated by one or two of the strongest men. Draw your own inference. We will not get self publication by the National body until we are able to convince the

Executive Council that an independent publication is worth while. They cannot support an independent publication there until they have the money and they cannot get the money until they have the membership. They cannot get the membership while they restrict that membership to a certain limited number from the State societies. They should make eligible to membership everyone who is a member of the State Society. It seemed to me well to bear these facts in mind when we are laboring to advance the interests of the Journal.

Dr. Wheeler—I would like to impress upon all present the necessity of being present at the National meeting this year. The President of the National Association favors an independent journal, and will do all in his power to further it. I believe that is true but have been surprised to learn of the difficulties which confront a man in the presidential chair. Something must be done there, or there will be a new society. I believe it possible to bring about a situation so that the present National Association will take the responsibility of a dental journal upon itself, but to do that, the members must show their willingness and interest in the matter. The officers will give the members what they really wish. The Executive Council is a close body, and has power I believe should never have been given to it. Still the by-laws says the Executive Council must meet in the open, and they cannot turn down any proposition without a public hearing. I would suggest that if any matters in regard to independent journalism come up before the council, those interested make it a point to be there to approve them, and I believe they will be carried. The men there are good men, cultivated and smart, but they are not there for the express purpose of seeing independent journals started, and we must take hold of that ourselves.

Dr. Allan—It is claimed that no one can be a member of the National Association unless he belongs to the State organization. Of what possible use could the members of the Iistitute be at the National Association unless they happened to be members of the State Society?

Dr. Wheeler—When that rule was passed, it did not unseat men who were already members. In Massachusetts every member of a district society is a member of the State Society, but in this State, the State Society only receives two delegates from each district, and two to fill in vacancies where men have been elected to permanent membership; so that membership is limited. It is planned to make it possible for every member of the State and affiliated societies to become a member of the National Dental Association without attendance at the meetings upon receipt by the National body of a certificate of good standing in one of the above named societies, signed by the President and Secretary of the State Society.*

Adjournment.

REPORT OF THE MASSACHUSETTS DENTAL SOCIETY.

In view of the fact that the National Dental Association met in Boston from July 28th to August 1st, the officers and executive committee of the State society deemed it best to limit the annual meeting to a one day's session. This convened on June 3rd. At ten o'clock in the morning the councillors met for the election of officers, and to attend to the usual matters of business that must come before that body. At three o'clock the general session met and listened to the President's address, and to the reports of the councillors and of the various committees.

The election of officers resulted as follows: President, Ned A. Stanley, New Bedford; First Vice President, Cornelius S. Hurlbut, Springfield; Second Vice-President, Eugene H. Smith, Boston; Secretary, C. W. Rodgers, Dorchester; Assistant Secretary, C. Edson Abbott, Franklin; Treasurer, Joseph T. Paul, Boston; Editor, Carl R. Lindstrom, Boston.

The society then adjourned to meet again informally with the National Dental Association at their session on July 28th.

PRESIDENT'S ADDRESS.

Gentlemen of the Massachusetts Dental Society:

In the By-Laws of your Society there is a clause relative to the duties of the President, which reads, "He shall at the opening of the annuall meeting subsequent to his election, give a concise statement of the condition of this and the District Socieites, with such suggestions for improvement as he may think proper."

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*This was done at the meeting in Boston, in July, 1908, unanimous consent to a suspension of rules having been given, so that now this rule is actually in force. Any member of a State, district or other affiliated society may become a member of the National body by having his membership vouched for in writing by the President and Secretary of his State Society.—H. L. W.

Living up to the "letter of the law" it now becomes my duty to render such a report. With this duty is mingled a feeling of pleasure, because of the opportunity it gives of expressing to the members of the Society, the deep appreciation felt for the honor conferred upon me. Also, because I wish to express my thanks to the members of the Executive Committee and officers of the Society who have ever stood by, with efficient counsel and timely aid.

If there has been anything of value in this year's administration, it has been due to a heartfelt interest in the advancement of your Society. If there has been anything of seeming failure, I ask your lenient judgment, knowing I have given of my best.

Early in the official year, interest having been awakened among some of the members in a visit to the Rutland Sanatorium, invitations were issued for an outing at Rutland, Mass. On a clear July Sunday, sixteen members gathered from the different parts of the State, went to Rutland, and enjoyed a most memorable day. Over the beautiful hills of the old country town they drove to the old Gen. Putnam house and one-half mile further to the west, to the old camping ground, where Burgoyne's army was quartered in 1778. Dinner was served at the Muschopauge House, where Dr. Hills of the Sanatorium also was a guest. The inner man fortified, the Sanatorium was visited and Dr. Hills gave an interesting outline of the work of the Institution. To the inquiring dentest there is much food for thought in the subject of tuberculosis and its relation to his work. All who were present were interested in Dr. Hill's presentation.

With the coming of the Fall season the Executive Committee bestirred itself. A meeting was called for September 15th, to discuss matters relating to the National Dental Association meeting to be held in July.

It was decided to shorten the Massachusetts Dental Society's meeting this year, to a one day's session. This, to the committee, seemed wise, as two such meetings held two successive months, might detract from the interest of each, and it seemed better to centre all effort upon one successful meeting. This lessened the President's duties somewhat; but as chairman of the

Clinic Committee of the National Dental Association his efforts have been turned into another channel.

The Clinic Committee has been most successful, and it is pleased to announce a program full of interest. It behooves us as members of the Massachusetts Dental Society to be present with a royal welcome for those members of the fraternity who will assemble from all parts of the Union.

The suggestion made at the annual meeting that a committee be appointed to arrange a banquet in honor of Dr. R. R. Andrews of Cambridge was carried into effect. This committee met in the early Winter and planned for such an occasion. Preparations were made for an event that should give just recognition to the worth of such a man as Dr. Andrews.

Fifteen hundred invitations were sent out, in response to which, one hundred and fifty of our leading dentists assembled and paid tribute to our Scientist, on the evening of February 29th. With feasting, speech and song, an evening was passed only too soon, notable for its feeling of fellowship and good cheer.

The enthusiasm and spirit of the members in the Societies of the several Districts has been upon the increase, as is proved by observations made at the meetings, and items culled from the reports of the Secretaries.

Your President was present at the December meeting of the Society of the Metropolitan District, where the subject of "Gold Inlays" was discussed by Drs. J. W. Estabrooks, Charles E. Parkhurst and J. J. Loiseaux. In this District, evidence of thrift and progress was noted and various new items cited; such as a class for study of dental subjects forming; a directory of all things useful to dentists and where such things can be procured being prepared, in the hope that it might result in a permanent Bureau of Information. The subjects of the four meetings which have been held have touched upon matters of importance to the dental profession. A net gain of twenty-five members speaks for itself.

The Valley District Society extended an invitation to the President to be its guest at the March meeting. Two subjects were discussed; "Tuberculosis as of Interest to the Dentist," by Dr. A. M. Belden of Northampton, and "Pathlogical Conditions of the Nose and Accessory Sinuses, Showing Anatomy," by Dr.

J. W. McCarthy of Holyoke. This same subject will be treated by Dr. McCarthy at the National Dental Association clinic. At the nine meetings held in this District, papers and demonstrations, of interest to the ambitious dentist, have made up the programs. Several new members are noted upon the Society's list, and an increase of five over the average attendance of last year.

Word comes from the Chairman of the Library Committee that a movement of importance has been started in Springfield, Mass. The city library committee has set apart a room in the new library building, for the use of the medical and dental profession. The dentists of Springfield have subscribed liberally to its support and now have a fund of eight hundred dollars, the income to be used to buy the latest dental books and magazines. A number of men have contributed their private libraries. This library consists of over one hundred and fifty volumes, and contains many old and rare books and all the latest editions of the standard works. The books are being used, and it is a movement that means much for the elevation of the profession. Much enthusiasm has been shown and other cities are sure to take up this work. It is suggested that the different Districts help along this movement. This may be one of the things to accomplish during the coming year. The Valley District seems to be getting up on the heights. May its example of progress be contagious and spread to the adjoining Districts.

The Southeastern District has been adding new material, which augurs well for an increase in interest. Although not many meetings have been held, five papers and five clinics have been given and, if all of them were as interesting as those heard at the "Outing Meeting," they have made up in quality for any lack of quantity. This Outing Meeting was held upon a September day. After a morning indoors, with business and research, an afternoon out of doors was enjoyed. Then the athletes of the District tested their strength and joined in a "day off" which every practioner needs.

The Central District has kept the fires burning upon the altar of dentistry. The President has attended all the five meetings of the Home District Society. One of these also included a banquet, at which guests from our neighboring Society were present. At one of the meetings Dr. Levi C. Taylor of Hartford, and at another, Dr. G. Brenton Squires of Boston, helped make the evening one of profit. Two new members have joined us.

The Western District reports three meetings held it Pittsfield, but as the time and place were not known to the President, no visit was made; but he will refer you to the Secretary's report for the year's progress.

On May 5th a meeting of the Allied Societies was held at Hotel Flanders, New York City. The speakers of the evening, for the most part, were from Boston; and one might well imagine himself in a Boston meeting. An enjoyable affair it proved to be, for both members and invited guests.

In considering available methods of improvement there is, first, a need of opportunities to do systematic charitable work after the manner of the medical profession. We now do a great deal of charitable or semi-charitable work in our private practices. As a profession we receive from the community no recognition of this, but are too generally regarded as showing a sordid, illiberal spirit. We have, in Massachusetts, two colleges, whose infirmaries are idle part of the time. It is suggested that this Society take steps, by a committee or otherwise, to see if one or both of these institutions will not place their facilities at the disposal of dentists wishing to attend to the great and but recently understood needs of the poor, particularly their children. Also, there is a long felt need of the publication of a monthly journal. We should have a journal which would give to the profession a progressive character. Dentistry is no longer in its infancy. It has learned how to talk, and now expresses itself in no mean language. Why should not this expression be made through a journal, essentially the organ of its profession and not of the supply house?

In order to establish this journal, we should have a National Dental Association that represented every State in the Union, organized upon such a basis that the publication of an independent journal would be a sure success.

We will suppose that the income of the Association with its eight hundred members and annual assessments of five dollars per member is now four thousand dollars. Should the membership be increased TO twenty thousand (which could easily be done, if every member of our District Societies became, through the State Society, a member of the National Association) with an addition to the regular membership fee of two dollars per capita, the income would be forty thousand dollars. This would insure sufficient funds for the maintenance of a thoroughly progressive journal which, with the increased membership of the Association, would place it upon a higher plane than it now occupies.

Five Dollars a year expended for a membership in the District, State and National Societies, with a subscription of a standard Dental journal, ought not to prove too ambitious for any live dentist. It was not until after the reorganization of the American Medical Association that its journal became a success.

Dr. Eugene S. Talbot in a letter of recent date writes, "The reorganization of the American Medical Association is on a very broad basis and is in a condition to do wonderful work. Any legislation, state or national, must receive recognition because of the pressure brought to bear. I need only mention two or three instances, the complete sanitation of the Panama Canal, the appointment of a naval surgeon to command the hospital ship at San Francisco, laws in state and national bodies controlling pure food and drugs, and the cleaning up of drug manufacturers and patent medicine concerns. These have all been brought about by committees thoroughly organized, with authority through the American Medical Association. The power wielded by this Association is unlimited. They are influencing medical men to hold office in towns, cities, states and in the national bodies, in order to influence sanitation in different parts of the country. It is wonderful the amount of work already accomplished in this short time. The dental profession should copy after this organization. I think that some of our States like Illinois have already done so. The journal of the American Medical Association has increased its circulation fifty thousand in the last few years, due almost entirely to the reorganization."

Why, then, should not the Massachusetts Dental Society take the initiative is such an undertaking? Our State has been the birthplace of many a forward movement.

A committee might be appointed, at this our annual meeting, the duty of which shall be to confer with the Executive Council of the National Dental Association at their coming meeting in July as to the advisability of such a scheme of reorganization.

Now is the time for a broader outlook for the dental profession, something beyond operations at the chair and table.

These have been perfected in a way, which permits the dentist to stand abreast of the physician. The story of the profession has been one of steady improvement, of constant, hard working, intelligent effort towards betterment of materials used, operations performed and personnel of practioners. Who will say that this steady striving towards greater efficiency shall not continue? But it remains for us now, to grasp an opportunity to advance the worth of the profession we follow, by perfecting our publications and organizations.

Mr. President and Gentlemen:

The committee on Oral Hygiene beg leave to submit the following report and recommendations.

To speak frankly it would have to admit that of itself it can report nothing accomplished, the results of which can be stated. This largely grows out of the fact that such an excellent start in this field has already been made by a local organization.

Dr. William R. Woodbury of Boston, in his admirable paper read before the American Academy of Dental Science at its meeting in Boston on October 2, 1907, recommended that a Dental Hygiene Council composed of representatives of the Allied Dental Organizations of Boston be appointed to devise measures for the furtherance of a "crusade for the better care of the teeth."

Leading up to this action pamphlets on "The Care of the Teeth," written in simple and clear language, were prepared, submitted to the criticism of our dental and public school authorities, printed and distributed to the public gymnasia, the public baths and the various dispensaries and kindred philanthropies.

Following Dr. Woodbury's suggestion "The Dental Hygiene Council," originally composed of one member each of the Allied Societies, except the Metropolitan District, which had two, was appointed. It has since added to its force two more names. The Council is well organized and holds monthly meetings.

It has revised and distributed another tract on "The Care of the Teeth," and with the co-operation of Dr. Woodbury it planned the first public exhibit of charts, models, etc., at the South Bay Union, together with lectures upon the teeth.

This exhibit now has been prepared to be placed at the disposal of those desiring it, all preparations for the storing, packing and boxing having been made and a rental per day having been decided upon, so that it may be self-supporting. Through the courtesy of the Society for the Control of Tuberculosis it is cared for and accompanied by their attendant when desired.

Thus is a union being established between all these kindred preventive measures for the prolongation of life. Now an excellent and exceptionally favorable beginning has been instituted by the Dental Hygiene Council which bids fair to increase rapidly in weight and effectiveness.

With such a Council already existing in this State we question the advisability of a similar committee carrying on the same work.

But the Dental Hygiene Council should be a State organization. It should be sanctioned by the State Society. It should be representative of the entire State, embracing members from the five districts, not only of Boston local territory.

Oral Hygiene and Prophylactic measures are the all important phazes of our professional work today. All else is secondary. This should be recognized. In this work the personal equation, which, in the guise of the public benefactor, is so prone to crop out, but which element is so readily detected by the public, should have absolutely no place. I will further add that the dental school equation should be submerged in this cause.

The State Society should back this great movement in our Commonwealth, so that uniform, well planned, and wise action may result. Better work is possible with such a plan than when cities, here, there and everywhere throughout the State, try out the pet schemes of some visionare.

The advancement of Oral Hygiene demands a weighty Commission, made up of men from the entire State, who are willing to give time to further its best interests. Such a Commission should be competent to pass upon a text book or other literature for our schools, or to take wise steps for introduction of the subject to schools or the general public.

In this comment no criticism is intended of the present work of the Hygiene Council, but a plea is made for enlargement of its scope.

Accordingly we recommend that the present Dental Hygiene Council be enlarged to represent our entire State and that it be authorized by our State Society and that its members be appointed for a definite term of years.

Let Massachusetts be foremost in this work of Oral Hygiene and the public at large will recognize the weight of edicts coming from a State Commission. Respectfully submitted,

CHARLES W. RODGERS,
CHARLES E. PARKHURST.

REPORT OF COMMITTEE ON ADMISSION OF PROPRIETORY DRUGS AND PREPARATIONS AT EXHIBITS.

At the 1907 annual meeting of this society the following rules were adopted to regulate the admission of remedial and prophylatic preparations at our exhibits:

"Rule 1.—No such article shall be admitted unless its active ingredients and the amounts of such ingredients in a given quantity of the article be furnished. The general composition of the vehicle, its alcohol percentage, if any, and the identity of other preservatives, if present must be furnished.

"Rule 2.—If the trade name of an article is not sufficiently descriptive of its chemical composition or pharmaceutical character, a descriptive title must be included."

The Society having decided not to have exhibits at the forty-fourth annual meeting, the duties of this committee, of necessity, have been very light the past year.

We are glad to report that "The Journal of the Allied Societies" has adopted the above rules to apply to their advertising department.

We believe that the duties of this committee may be broadened so as to include other work which will be of value to this Society.

We have in mind the compiling, in pamphlet form, of dental formulas gleaned from the dental, medical and pharmaceutical press and from members of our profession.

We recommend that whenever this Society allows exhibits, this committee be given floor space, gratis for the purpose of exhibiting and distributing samples of favorite prescriptions, together with the above pamphlet, if it appears advisable.

That the name of this Committee be changed to "Committee on Remedial and Prophylactic Preparations" and still retaining the same power as to admission of proprietary preparations at exhibits. Respectfully submitted,

G. B. SQUIRES, Chairman,
CHARLES W. RODGERS,
GEORGE H. WRIGHT.

The following resolutions were passed:

Moved, That we recommend the appropriation from the treasury of this Society, the sum of five hundred dollars to be expended, if needed, under the direction of the Local Committee of Arrangements of the National Dental Association for its meeting July 28-31 inclusive, it being understood that should there be a surplus of funds after the association's affairs are settled, the amount is to be returned to the treasury of this Society.

Whereas, Dentistry and the allied profession of Medicine are humane professions, directed toward the relief of suffering and the prevention and cure of disease, and,

Whereas, A considerable portion of the work done by members of these professions is performed without compensation and for the benefit of mankind, and,

Wheras, The present tariff on instruments and supplies for these professions is a serious burden and tends to limit their usefulness,

Therefore be it Resolved, That we, the members of the Massachusetts Dental Society, in convention assembled, hereby advise and request the National Dental Association at its meeting to be held in Boston, July 28th to 31st, to petition Congress for the removal of all protective tariffs upon instruments and supplies intended for use in the Medical and Dental professions.

Whereas, The journal of the allied societies is now in its third year of publication, and is gradually increasing in size and circulation each year, being supported by five societies, a sixth having recently joined in the movement, with a prospect of a seventh being added soon,

Be it therefore Resolved, That we enter the allied societies and publish our proceedings in the journal of the societies, limiting the expense for present year to $300 for publishing reports.

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THE JOURNAL

OF

THE ALLIED SOCIETIES

Vol. III DECEMBER, 1908. No. 4

THE PIONEER.

Real independence and true progress is achieved only through sacrifice, isolation from the majority, and the censure of friends.

Civilization has been advanced and carried onward to fertilize the desolate places of the earth through the effect and self-sacrifice of the pioneer. He has blazed the trail that others might follow and find interest and courage in the making of new conditions and in the uplift of his fellowmen.

The pioneers who long ago conceived the idea of independent journalism, labored and suffered that the literature of our profession might be free from the possible control of trade. Not that trade per se was wrong or degrading, but for the reason that the ethics of trade and professionalism are quite apart. The ethics of trade is to keep methods or procedure to ones self and stifle competition. The ethics of professionalism is to give freely of ideas and procedure that all may benefit, and not that one may benefit at the expense of the many.

True professionalism looks and looks only for the highest scientific attainments, believing that these attainments may best be obtained through free and independent journalism.

The struggle, thus far, has been carried on against great odds. Earnest men have worked and worked hard for their ideals which now seem near at hand. It is not only pleasant to now look back upon the founders of independent journalism, but a great satisfaction to realize that so many of them are still living and working for the cause. Their influence and energy have gradually won supporters to the movement. The blazed trail has become widened to accommodate these splendid recruits and the National Association has become honey-combed with their power. This power that materialized at the meeting held in August in the independent atmosphere of Boston caused definite steps to be taken towards a reorganization of the Association and the publishing by the Association of an American Journal of Dentistry devoted wholly to the advancement of science and to the interest of the Dental profession. The goal is about reached and the reward of the pioneer is at hand.

EUGENE H. SMITH.

THE FUNDAMENTALS OF ORGANIZATION.*

BY REV. WILLIAM E. GARDNER.

The successful men of to-day are those who anticipate the temper of their time and not only fit themselves into it, but contribute to it. It matters little what profession we are in, it matters little what trade we take up, the rule is the same for all positions, all stages of life—success is won by him who comprehends the temper of his time and in his activity fits himself into it and contributes to it.

The rule goes further when applied to an organization. An individual may live, that is, have an existence, but an organization cannot live unless it anticipates, co-operates with, and contributes to, the temper of the times.

Our first question, then, as we consider the fundamentals of organization to-day, is to ascertain the temper of our time. It is putting it mildly to say that we are at the turning of the current.

The day of discovery, investigation, accumulation, for the joy of having, has come to an end. "To have and to hold" was yesterday's motto. "What's the use" is the motto of to-day.

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*Read before the Metropolitan District Society, April 27th, 1908.

We can take the motto in two ways—"What's the use"—a laconic, stoical cry. Why pile up, why discover, why investigate? "Little systems have their day, they have their day and cease to be." "The success of to-day is the failure of to-morrow." All flesh is grass—life at its best ends in death. One of the best developments which has come of the stoical aspect of the phrase is the emphasis on the simple life, the natural life. The man of wealth returns to the farm. Camps take the place of hotels and many men would rather win a cup in a golf tournament than the game in the street.

Taking the phrase in another way—there is a great cry of: Now you have discovered and investigated and accumulated—what are you going to do with what you have and what you hold?

The "simple life" is slipping by us like a dream and the Effective Life spelt with big capitals is hard upon us. Look, for instance, at the attitude toward Wealth. A new attitude has come in which the man is looked at before his wealth. The World's Work commenting in a recent number on the financial crisis and financial readjustment, says: "Out of it all comes a new theory of life to the people of America. There is no doubt that one of the most important results of the disturbances of the past year or two, viewed from an economic standpoint, is the new way that the people of this country have come to regard wealth. Formerly wealth was measured in dollars, and the measure of it was let go at that. To-day we scrutinize most carefully every dollar in the pile. It has come to be recognized that wealth must be considered from the standpoint of quality as well as quantity."

The wealth of the future must represent a *useful effort.* The man who takes a million out of a deal will be asked by the world: "Have you been honest? What have you given for us to use, sir?" We will look at the man and say, as Mr. Bryan commented, every dollar that you have not honestly earned is a dollar too much.

In the scientific and educational world there is a change. Education and science are no longer of value as accomplishments; they must "deliver goods." In educational programs we find a falling off in classical study; the sloyd teacher is often not only more popular than the classical teacher, but it is a question if he does not contribute as much, if not more, toward the making of a cultivated gentleman.

In the scientific world the study of the human spirit is asserting itself as of (at least) equal importance with the passion for pure science. The narrow researcher is being estimated, appreciated more truthfully, and is passing into the background, and the man of broad culture is coming forward.

Character and style in living and thinking are now no less regarded than the conquest of new truth. In other words, "the prize is won—now what will you do with it" is the world's attitude.

The real question of to-day is adjustment. We have been discovering, now we will begin to *live* in the land discovered. We have been investigating, now we will *use* the results of our investigations. We have been accumulating, now we will live with our accumulations.

This is no easy task, but to do it—is the temper of to-day and to-morrow. Columbus discovering America, and Columbus living as a householder in America are two different men. You and I must meet this new temper.

Keeping in mind that the temper of our times is, *how to use,* and remembering that we are in a current that has already turned —we can see why the motive and method of organization are being scanned to-day—and most of them are getting an awful jolt in one form or another.

The reason can be easily seen when we consider that the end and aim of organization has been—get the largest possible return for the least possible expenditure. This as an end can no longer stand. It must be qualified, and not only is the size of the expenditure and the size of the return to be considered, but also the quality of each.

This is the natural, logical result when you turn from quantity to quality—when your motto of life changes from, "to have and to hold," and becomes—"how can I use?"

Under these circumstances with the new temper—the end and aim of any organization must be—avowedly—to a greater or lesser degree, educational. Every organization must educate in two directions:

(1) Educate intelligent demand on the part of the public.

(2) Educate the man or men to fill the public's demand when educated.

I have been greatly interested in the recent development of a school for clerks. Most of you probably know that the Jordan Marsh Company now maintain a well organized school for the creation of intelligent salesmen and women. The mornings are spent in lectures on colors, goods, departments, methods of approach, and response to customers, etc., etc., while the afternoons are used by the student in practical work behind the counter of one department after another. In this way an educated and efficient service is created, and each student is personally studied and placed in the position where his natural qualifications will gain the best results.

It is not enough, to-day, for a great department store to educate the public by elaborate show windows and other methods of advertising. They must also see that the goods advertised are shown by an efficiently trained clerk. The interesting part of the idea is—that it pays. It is good business to-day, with the new temper not only to educate the public's demand, but to educate the men and women who fill the public's demand.

The same principle must be applied all along the line. The temper of the time has given the public a new religious conviction—the education of the ministry must be changed to meet it. The temper of the times has thrust new elements into the economic and political problems—and new leaders must be educated to meet those problems.

Your profession is pre-eminently dependent on the educative force. I come to you with the intention of spending $25.00; you talk with me and show me that for the best interests of the present and future, I must spend more—you educate me— by appealing to my pride and desire to look as fine as possible—and I part with all my money—and so much more per month for many months after.

This condition is like dropping a pebble in a pool—others see my good looks, realize my comfort and health and desire what I have. It is for this reason that your profession must be organized and standards continually raised—and the profession's capacity to meet the public's educated demand, be maintained and the high standards all along the line be increased.

Now, turning from the first side of the educational problem, that is, from educating the public, let me deal a little more directly with the educating of the man to fill the public's demand. This, with the new temper of the time, must be the supreme ideal of any professional organization.

You know as well as I that the supreme agency in making men is men. The best organizations of the future will be successful because they put the emphasis, not on methods or machinery, but on men. Here again the temper of the time is our guide. Up to now it has been said again and again, "Get your organization! Get good methods; get good machinery, and you will get effective results." Matthew Arnold has characterized the age as the era of "The Worship of Machinery." We are seeing the result.

That phrase—The Worship of Machinery—strikes the most cruel note of our materialized civilization. It stands for a motive in life that supplants reverence and love for human personality. It has seared the conscience so that crimes vs. brotherhood have been condoned in the name of progress and business necessity. Factories have prepared debased products and laws have been evaded to secure their distribution.

Wealth has come, but with it a luxury, so ungoverned by ethical solicitude, that it has degenerated into a social offence.

Few elements have caused such a change in the temper of the times as "The Worship of Machinery."

A reaction has set in, there is a cry going up for men in organizations that will correct the worship of machinery. Machinery we must have, but it must be made by men, run by men, and its best product must be men.

You hear the cry going up for *men*. The *right man* in the president's chair. The *right man* as leader of every political organization from national down to ward organization. The *right man* in our religious and educational organizations. I appeal to the president of this organization: "Can you, sir, get the best men to back up your policies in the educative work of the organization?" Is it not true when I say that the best men cry: "We want effective leadership," but they are not ready to make the sacrifice of time, money and energy, to heed the call which they themselves send up, when that call echoes back to their own ears.

Let us be perfectly frank. The organization of the future cannot meet the temper of the times unless its best men are willing, nay more, enthusiastic, in intelligent leadership.

I have given two fundamentals of a successful organization. (1) Comprehension of the temper of the times. (2) An educative purpose toward the public and enthusiasm on the man part of those called to lead, rather than machinery.

A third fundamental is this: Kill as soon as possible the conception that an organization stands for giving a man a lot for a little. We are expecting from organizations what we morally have no right to expect. We put a few dollars into a trust or corporation and we take 10-20-25 per cent out and never question how the money was made.

We pay our fees to our professional organization (I suppose it is the same with doctors as with ministers) and then we say we don't get anything from it; lectures are not good, dinners bad—and as attendance is falling off—we stop. The real trouble is that we have put in so little that we are disgusted with what we take out.

We have carried the worship of machinery too far—we want without effort. We have carried too far the economizing of strength and time so that we are expecting a good many things to come to us, without effort. We are like the intoxicated man who sat on the curb and waited for his house to come around. We will wait thinking our return will come—but it will not. We have not put in enough to give us the right to expect much. We must put in if we are to take out, and what we take out depends upon what we put in. This is an absolute rule.

The real educational motives of our profession are not seriously considered. If we are to meet together for social pleasure and incidentally improve the opportunity—let us be frank about it and expect little rise in the standard of our profession. Such I do not believe to be the desire of our professional men. We want real advance—we are willing to put a good deal of ourselves in but we want methods in organization that will produce results—commensurate with our investment.

Closely associated with this fundamental is another, the fourth. Whatever policy an organization seeks to pursue it must see to it that each member puts in something more than his membership fee. Any professional organization will become strong only in so far as its methods are such that each man puts in enough of himself as a unit in that organization. The future success of an organization does not depend so much on giving every man a chance as it does on giving each man his chance—the chance peculiarly his own. Each man wants his chance and he will welcome and work for the organization that enables him to see it and help him to it. To appeal to the lowest, as well as the highest, in a professional organization is no easy task—but the success of any organization depends on captivating a man on the plan in which he lives and assisting him to raise himself.

These last two fundamentals deal with the leader in his relation to the rank and file of the organization. Here is the real problem—and should I attempt to describe specific methods by which the leaders of this organization might see that each man puts in, in proportion as he takes out, and that each has his chance—I should become stranded on an unknown *sea*. We are trying to apply these fundamentals in the work of a Parish because we see that they are the basis of all successful movements. You must apply them to your profession in the same way.

Tammany Hall will stand out in history as one of the most perfect types of organization. (1) It understood the temper of its time. (2) It educated men. It raised up men ready, willing, enthusiastic, intelligent in leadership. (3) It did not lead men to expect more than they put in. (4) It saw that each man had his chance.

To these fundamentals I would add *vision*. The clearer and more attractive you can make the purpose of the organization, the better it will be.

When I read the indefinite, nondescript "objects" of some constitutions I do not wonder they are unsuccessful. An organization of men means a few or a multitude of men who have seen a vision. Then let the vision be made as clear as words can make it. Let each man know from the start that he is embarked on a voyage that is worth while.

I have no fears for any organization that will set a large vision of usefulness to mankind before its members. Tammany and every organization that lacks in such a vision must fall ultimately.

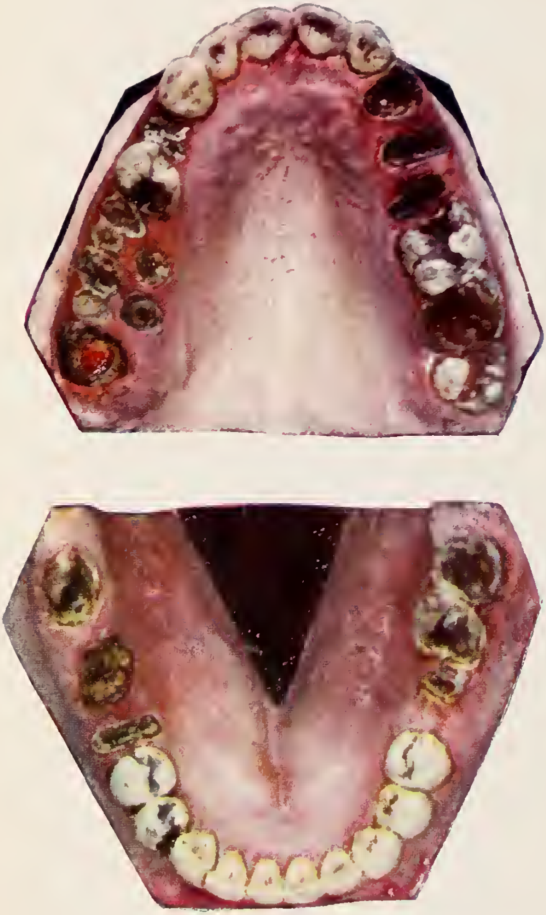

Plate I

That this organization before me may (1) understand the temper of its time; (2) that it may raise up men, ready, willing, enthusiastic, and intelligent in leadership; (3) that it may cause men to put in much and get out much; (4) that it may give each man *his chance*—is my earnest wish.

THE IMPORTANCE OF ORAL AND DENTAL CONDITIONS IN TUBERCULOSIS.*

BY WILLIAM R. WOODBURY, M. D., BOSTON, MASS.

A clean mouth and well-cared-for teeth help prevent tuberculosis. Certain facts support this claim. These facts I am to set before you, and with them some models and photographs. These illustrations do not represent unusual conditions. On the contrary they show a not uncommon condition. So common is a decayed or carious condition of the teeth that it is called the People's Disease.

Experience has shown that the only hope in controlling tuberculosis is through intelligent, thorough and comprehensive preventative measures. Prevention is the key-note of the crusade against the "Great White Plague"—a disease which is infectious; is communicable; attacks all ages, but particularly young adults; causes more deaths than any other disease, save pneumonia; and is responsible for greater amount of invalidity, and suffering and privation in their broadest sense than any single disease. The roots of the evil must be touched.

In tuberculosis there is an intimate relationship to debility, conditions which reduce the body's resistance and malnutrition. Both in the prevention and treatment of this disease nutrition is of the first importance. Good and nourishing food and in generous measure is a first essential. Nutrition is dependent upon complete mastication. Thorough mastication depends upon sound and useful teeth and a mouth equipped with is full complement of these necessary organs of digestion. Mastication is the key which unlocks nutriment from the food. A mouth which is full of decaying stumps or which has been ruthlessly robbed of its teeth cannot do its work properly. It cannot thoroughly chew the food which the body needs to enable it to combat and overcome disease.

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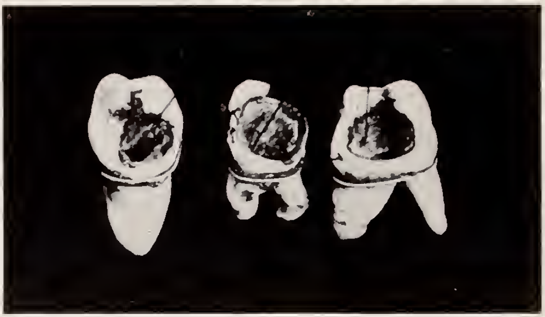
*Read before the International Congress on Tuberculosis at Washington, D. C., Oct. 2, 1908, and The New York Institute of Stomatology, Oct. 6, 1908.

Before food taken into the body can be converted into living tissue or made to yield its content of energy and heat, it must first undergo the process of digestion. This process begins in the mouth. Saliva is the first digestive fluid food meets. It is one of the most active and important digestive juices secreted in the body; its office is more than a mechanical one of rendering foods soft and moist to enable their slipping down the oesophagus. Complete and deliberate chewing thoroughly mixes the food and saliva. The part which mastication plays is more than that of grinding the food into particles fine enough to be well swallowed. It performs a number of important offices in the work of digestion. The first of these is to accelerate the flow of saliva and stimulate its digestive power by increasing the alkalinity.



No. 1. Decayed Teeth—Human Culture Tubes.

This is of the highest importance to the digestion of the whole great class of food-stuffs known as carbohydrates. The saliva is capable of practically completing the digestion of the starches and sugar—if they are retained in the mouth long enough and subjected to sufficient mastication—before they are swallowed into the stomach. Starch containing foods constitute a relatively large bulk of the nutriment consumed daily. A habit of thorough mastication promotes digestion at the very gate-way of the alimentary tract. It is a habit which should be encouraged; but encouragement avails nothing when there are no teeth with which to chew.

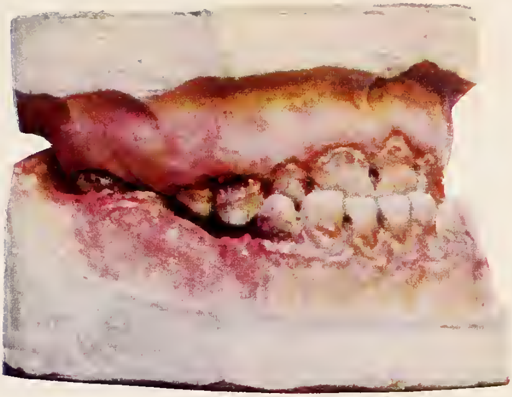
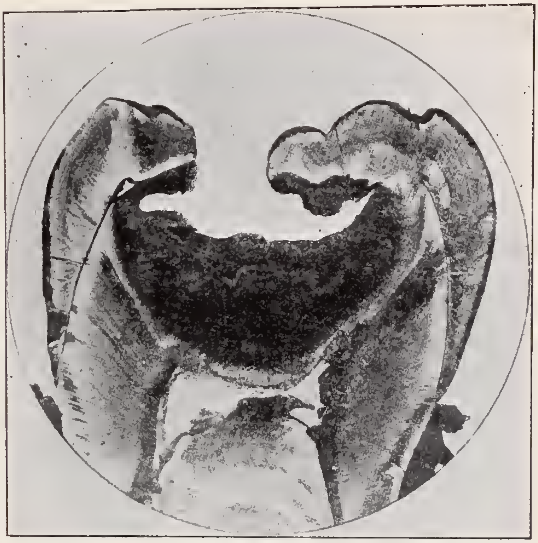


Plate II

In the small intestines there comes later another opportunity for the digestion of starch, but for a number of reasons it is undesirable not to take full advantage of the first opportunity nature offers for the preparation of this important food-stuff for future use. Besides, thorough and deliberate mastication, through a fine communition of the food particles, is a considerable aid to the digestive processes which take place in the stomach and intestine. It is the only phase in the digestive process over which the individual has control. When sufficiently mixed with saliva there are few starchy foods which are indigestible.

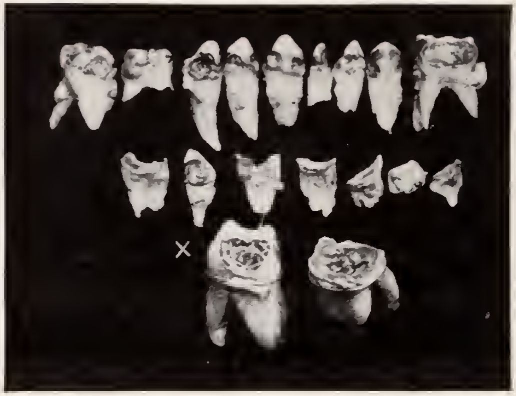


No. 2. Longitudinal Section of a Decayed Tooth, showing destruction of tooth by undermining caries. (From "A Study in Pathology of the Teeth." By W. D. Miller, M. D., D. D. S., Ph.D., Sc.D. *Dental Cosmos*, January, 1905.)

The thought, taste and smell of tempting food stimulate salivary flow. When food is bolted half-chewed—and this not infrequently happens from neglected and painful oral and dental conditions—the taste is swallowed with it, the palate is only moderately stimulated, only little appetite juice is produced and the first step in digestion fails. An unclean mouth and decaying and painful teeth cannot pave the way for any pleasurable anticipation or for any easy and thorough digestion.

Mastication increases the amount of alkaline saliva passing into the stomach, and this prolongs the period of starch digestion in the stomach; and by its influence upon the gastric contents it aids in the work of digestion. It assists the gastric and intestine juices to carry on the digestion of the fats and proteids. The secretion of the gastric juice is started by impulses which originate in the mouth; the mere chewing of food is sufficient to cause a liberal secretion of this digestive fluid. Dental cripples cannot get the full nutritive value of their food.

Neglected teeth lead to their own destruction. Tooth-rot spreads. Every cavity in a tooth is a focus of infection. And yet dental caries or tooth-rot is ignored and complacently allowed to go on even to suppuration—a condition which in any other organ of the body would cause grave anxiety.



No. 3. The nine-year-old boy from whom these putrid teeth were removed had within three years severe attacks of diphtheria and scarlet fever.

Decaying teeth not only destroy themselves, but they work harm in other and remote parts of the body. They become human culture tubes with ideal culture mediums. They are wide-open and unguarded storehouses of infection which are a constant menace of health. The mouth cavity offers generous room for receiving and harboring the germs of disease. The teeth alone present twenty-five square inches of surface; and when they are mere hollow shells filled with decaying tooth-substance and decomposing food, they invite the germs of disease, and provide them with favorable conditions for their growth

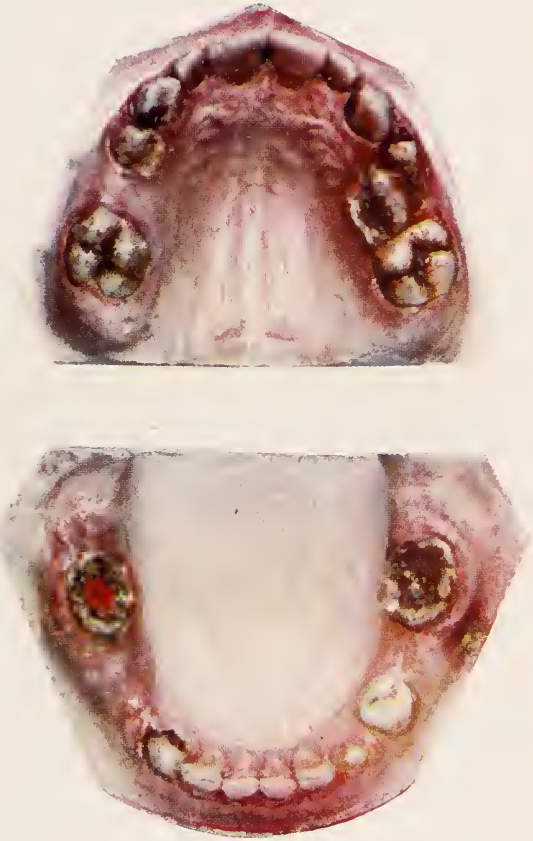


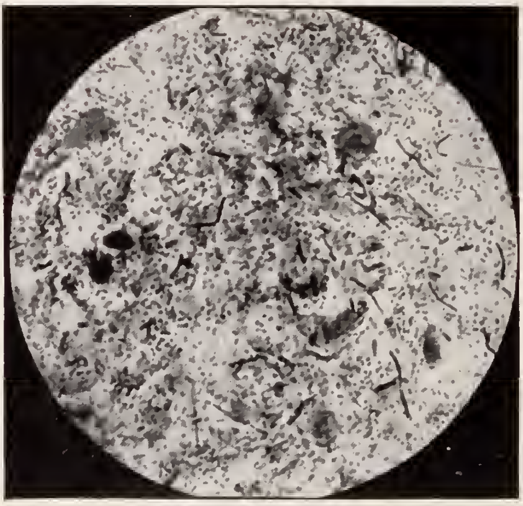
Plate III

and spread. Tubercle bacilli need but little encouragement; they survive conditions which would kill most organisms.

Diseased teeth keep the mouth foul and inflamed; they interfere seriously with digestion; they lower the vitality; they aggravate a bad condition of the tonsils and throat; they cause inflammation and infection of the glands of the neck; and they infect food which finds its way to the small intestine where digestion is completed and absorption of the digested food material is begun.

The importance of the alimentary canal as a portal of infection in tuberculosis is being confirmed by scientific research. There is a growing conviction that tubercle bacilli pass through the intestinal wall. This belief is supported by a large number of investigators. Granting that there is a possibility of tuberculosis infection through the digestive tract there is every reason why the condition of the mouth and teeth should be given the closest attention; they should be kept in the best condition possible. They are not receiving proper consideration; they never have received it. Evidence of their neglect is in the fact that ninety-six per cent. of school children have decayed teeth. One-fifth of the entire population are in the way of becoming easier victims of tuberculosis. They are forming wrong life habits of eating; habits which interfere seriously with their nutrition, and which lower their resistance to disease. Many of the parents of these children have as little appreciation of the importance of proper care of the mouth and teeth as do the children themselves. Even well-informed medical men ignore the necessity of a clean mouth and well-cared-for teeth. The natural teeth should be saved, and at any cost. Diseased teeth should be closely watched and treated.

A deep-laid habit of keeping the mouth and teeth clean prevents decay and disease. Instruction in oral and dental hygiene to school children is the primer of the teaching of the control and prevention of tuberculosis. In early childhood this habit should be formed. The child should be taught and encouraged to keep the mouth as clean as the face, and the habit should become as nearly as possible an instinct. In the home the foundation of the habit should be laid, and parents should have a deep enough groundwork of knowledge concerning the teeth to give the child a motive, to give him a satisfactory reason why he should spend five minutes every day in the care of his mouth and teeth. In the schools, public and private, is the opportunity to emphasize the full meaning of unclean mouths and neglected teeth, to help parents fix this first principle of hygiene firmly in the minds of children. Every child should be taught that a clean mouth and well-cared-for teeth help prevent tuberculosis.



No. 4. Microscopic view of decomposing food and tooth substance taken from a decayed tooth,—taken from X in illustration No. 3.

Hygiene now holds the place of honor in modern medicine. At the present time the interest in medical art is mainly centered in the prevention of disease. The New Hygiene seeks out and deals with first causes—the sources of disease; and by this token its methods are more simple and incomparably more effective. Its goal is to promote successful living by helping man harmonize himself with his necessary conditions, natural and unnatural. A part of this New Hygiene is a popular movement for better care of the mouth and teeth; a movement to inspire general interest in saving the teeth—the much-neglected organs of nutrition. Helping promote the control and prevention of tuberculosis is but one factor of this newly organized crusade. It deals first hand with all the infectious diseases, constitutional and functional diseases, and in School Hygiene it is a feature of first-rate importance.

THE USE OF PARAFFIN IN FILLING ROOT-CANALS.*

W. B. DUNNING, D. D. S., NEW YORK.

When it was found to be possible to preserve pulpless teeth by cleaning and filling the pulp canals, the problem immediately presented: What material will most fully meet the requirements of a root filling? The probability of abscess following the death of a dental pulp had been so well recognized for centuries that a tooth having lost its vitality through caries or otherwise was considered beyond hope of saving. The great number of teeth containing dead pulp led, of course, to wholesale extractions, and the early attempts at root filling, with all the crudities of a new process, seemed a vast step in the progress of dental science. Later generations in our profession, less impressed with the wonder of saving any non-vital teeth, have labored to reduce the failure percentage to reasonable figures; but while great ingenuity has been rewarded by much progress, a certain complacency has followed creditable performance, and it cannot yet be said that the operation in question more than approaches scientific certainty. Our increasing facility in radiography is bringing to light much to moderate the enthusiasm of operators who through long practice have reached a great degree of skill in this work. A short bend at the apical fifth of a root, a nodular formation of secondary dentin at that point simulating to the touch the true end of the canal, or an unsuspected supernumerary root, are among the common causes of error. Dormant abscesses at the ends of such supposedly well-treated roots are found in discouraging numbers by the X-ray examination. By this means it is being plainly shown that our methods in root work are far from perfect.

In this short paper I shall speak only of the question of root filling. Given a well opened and sterile canal, it becomes our business to fill and seal the same from all contamination—and to do so with such regard as may be to considerations bearing upon the tooth, the patient and lastly the operator.

The ideal root filling should:

1. Perfectly fill and *seal* the canal from apex to orifice. Absolute contact presupposes a liquid condition at the time of insertion.

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*Read before The New York Institute of Stomatology, October 6, 1908.

2. Remain unchanged as to form; which implies, (a) non-expansion, (b) non-contraction; hence, (c) impermeability, (d), non-absorbability, and (e) chemic inertia.
3. Possess antiseptic qualities, and be
4. Durable.
5. Pliable and moldable.
6. Non-irritating.
7. Inserted without pressure and removed without force.
8. Of unchangeable color, compatable with tooth structure.

It is unnecessary to give a list of the root-filling materials that have been used from time to time with greater or less success; experience at large has narrowed our practice to a choice of very few.

Chloropercha pumped into the canal and followed by the gutta percha point is perhaps the most widely used root filling. With its many excellences there is the serious disadvantage that a certain amount of the liquid medium remains in the root when the operation is finished, however careful the operator may have been to express and remove the same. From this the chloroform soon disappears causing a definite though very slight shrinkage. For the purpose of magnified illustration this bottle of chloropercha from which nearly all the chloroform has evaporated, will show very graphically what happens: the gutta percha shrinks from the periphery toward the center, leaving a considerable space about the mass. This may be several hundred times the width of the space created about the average gutta percha root filling by the evaporation of the chloroform; but that a space exists, and one large enough to admit infective material, is demonstrated daily by the odor and character of old fillings of this sort that we have occasion to remove.

Oxy-chloride of zinc fills the canal perfectly and permanently and maintains asepsis; but it is an irritant which must not reach living tissue beyond the apical foramen, and it is extremely difficult to remove.

Narrow strips of non-cohesive gold foil may be effectively used for "calking" the apical foramen—the remainder of the canal to be filled with some other material. It is difficult to remove.

Paraffin has been used by the writer for about five years with increasing confidence in its general fitness for this work. With the exception of a doubtful quality to be noted later, it tallies very nearly in practical use with the ideal requirements.

Paraffin is a white, odorless, translucent crystalline hydrocarbon obtained from coal tar. In a pure state its physical properties resemble those of white wax. It melts at about 50° C., and is soluble in ether and hot alcohol. Chemically, it is extremely inert. In passing from the liquid to the solid state it clings to the walls of the vessel in which it is contained, the shrinkage occuring from the center towards the periphery. Once solid the form of the mass remains unchanged indefinitely.

Paraffin is used in cosmetic surgery to restore contours of soft tissues—the heated liquid being injected by means of a suitable syringe. This plan has been tried in filling root canals, but the trouble has been that the paraffin cools before it is properly placed—the air in the canals not being wholly removed. Also, in the method mentioned, the dentin has not been heated to receive it.

The copper wire point, heated electrically, and known as a root drier, is an ideal instrument for the insertion and adaptation of paraffin. The thoroughly treated and sterile root canal is dried with alcohol and the dentin warmed until the patient notices a dull pain. A point of cold paraffin is then inserted and the hot wire carried directly through it and to the root apex. Almost instantly the melted paraffin follows the heated conductor to its extreme end, *capillarity assisting in direct proportion to the decrease in calibre of the canal.* The air bubbles are "tickled" out as through so much water, and the wire is carried against all sides of the canal for a few moments, "sweating" the liquid into the very structure of the dentin. When the wire is withdrawn the canal is filled and heremetically sealed from apex to orifice with an impervious and unchanging material. The solidifying mass shrinks slightly at the center, but clings at the periphery. There has been no irritation; no pressure has been applied in placing the filling; none will be needed for its removal—which consists of remelting and absorbing with paper points. This mechanically perfect operation is performed in less than a minute's time.

With upper teeth there is some difficulty in getting rid of air bubbles. In small canals capillarity overcomes gravity, if the incline is not too great. The patient's head should be well tilted back; and in large canals where capillarity is not effective, or in cases of any doubt as to air bubbles, a cold gutta percha point should be carried directly through the liquid paraffin and allowed to remain. This is at all times a wise precaution. All paraffin root fillings should be at once covered and protected by a thick layer of cement.

Having disposed of the mechanical part of the problem there remains to be considered the chemical and bacteriological aspects.

The fact that paraffin is slowly absorbed when imbedded in vital tissue becomes a disturbing thought where abnormal foramina or perforations allow such contact. To be on the safe side, therefore, it would seem wise to confine our use of this material to strictly normal roots.

Ordinary antiseptics are nullified in paraffin by their particles becoming imbedded therein; but fortunately the same disposition is made of any septic material so isolated. However solidified fomaldehyde, or paraform, is miscible with paraffin, and formaldehyde gas is given off under slight heat, by means of which positive antisepsis may be secured at the moment of filling. The irritating gas escapes at the orifice, not affecting the periapical tissues.

The filling of deciduous roots with pure paraffin seems a rational procedure, for as absorption of the root occurs the semi-soft material is either pressed aside by the advancing permanent crown, or removed by absorption.

I am indebted to Dr. J. F. P. Hodson for the suggestion of mixing with paraffin the zinc oxide powder used for cements. This gives the mass body and rigidity, and if desired, a certain color. The following mixture will be found useful:

Melted Paraffin	ʒ viii.
Paraform	℥ viii.
Zinc Oxide	ʒ iv.

About one-half of the zinc oxide to be added to the paraffin, stirring constantly until cooled to the consistency of soft dough. Then knead in the remaining quantity of oxide and paraform powder, thus making a uniform mixture throughout.

When semi-cool this mass may be rolled into slivers resembling gutta percha points. It is important not to add so much of the zinc oxide as to impair the *fluidity* of the paraffin.

I wish to emphasize in concluding, the simplicity and mechanical perfection of this method of filling roots, and the great advantage of easy removal, where such a step becomes necessary.

LEPTOTHRIX BUCCALIS.*

BY THEO. VON BEUST, D. D. S., M. D., DRESDEN.

(*Translated from the Ger.*)

The term Leptothrix implies colorless thread-like microorganism displaying a basal end attached to a substratum and an apical or free growing end. They are sheathless, are free from ramifications, and contain no sulphur granules. (1)

In 1847, Robin (2) designated all the forms commonly supposed to be peculiar to the mouth as Leptothrix buccalis, which resulted in this name being identified with the various microorganism found in the materia alba upon the teeth until very recent times.

Leptothrix buccalis was described as consisting of long threads .7-1-m. in thickness, colorless and frequently found united in thick bundles. The threads were said to break up into long and short rods, cocci, spiral and vibric, and spirochaeta forms. (3)

In 1866 Hallier, in a sense confirming these observations, expressed the belief that the different forms found in the buccal cavity were only phases in the development of a single species. Hallier's opinion was shared by a number of observers, until Miller, in the beginning of the 80's disputed these theories, claiming that the assertions regarding the identity were ill-founded and proceeded to classify and rename the forms in question. Miller's classification and nomenclature are to-day in general usage.

The term Leptothrix is not necessary applicable to the organisms under discussion, the fact of its being confounded with sheathless and colorless forms, characterized by basal and free-growing ends entailing a certain degree of reservation in its use. Nevertheless it shall be accepted as the subject for to-day, as all the organismens to be considered may be included under the name.

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*Read before The New York Institute of Stomatology, October 6, 1908.

Vicentini's discovery (4) in the beginning of the 90's of the Leptothrix racemosa, which was characterized as the parent of the most of the mouth forms, was destined to again direct the attention of the recent observers into the paths trodden by the old scholars.

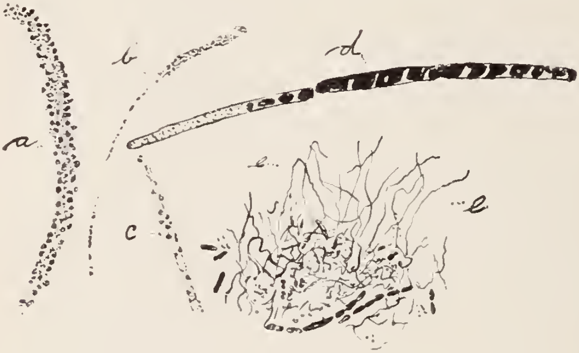

Fig 1.

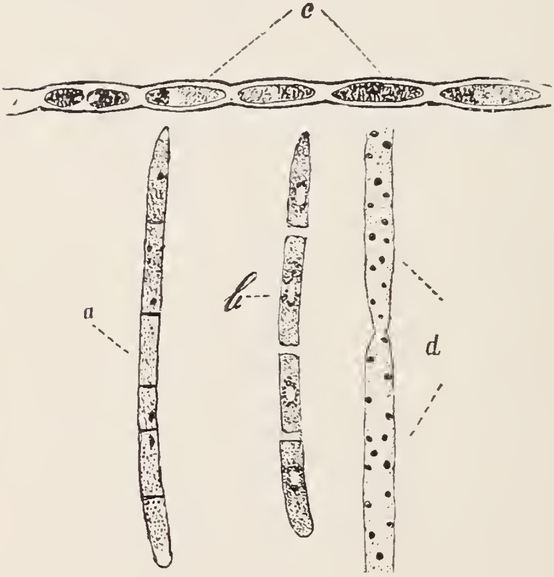

Fig. 2

You will now kindly direct your attention to No. 1. Fig. a, b, c, represents the Lep. racemosa, pictured by Williams in the Dental Cosmos (5). As above mentioned Vicentini claims that the spores attached to the stems are the source of almost all of the organisms found in the buccal cavity. This statement, however, has not yet been directly proven and is not generally accepted to-day. Before dwelling upon this I will ask you to please notice that part of the stem b, which has been divested of its spores. It has retained the stain imperfectly, and appears thin and granular. Fig. d was taken from Miller's Mikroorganismen der Mundhöhle. (6). This bacillus has been treated with Iodine

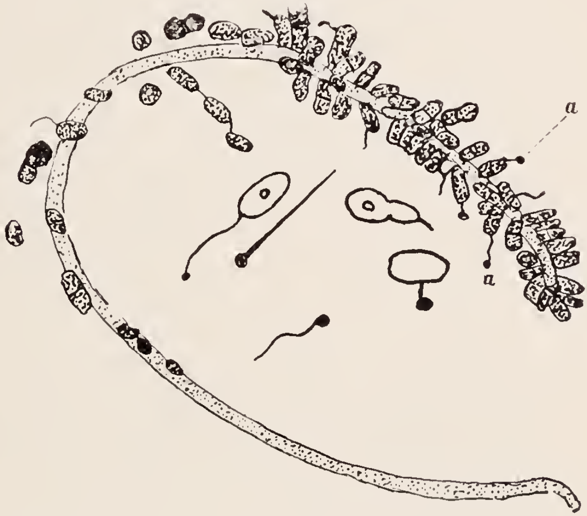

Fig. 3

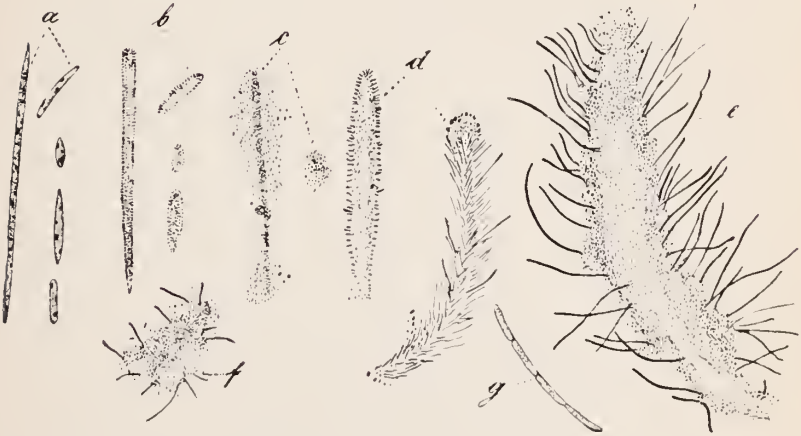

Fig. 4 and 5

—iodide of Potash Solution and the dark masses inclosed in its interior are the result of the action of this solution upon granulose. This bacillus was named by Miller Bac. baccalis maximus. Other bacilli, in every respect identical with the one shown, differently merely in the fact that the presence of granulose can not be detected, were named Leptothrix maxima baccalis. Fig. e, shows long, thin threads which usually pursue an irregular ill-defined course, and appear to have lost their vitality. These were named by Miller, Leptothrix innominata.

The thread forms of the mouth were formally supposed to originate from a central body or mother, the so-called Matrix. Miller disagreed with this theory, declaring that the Matrix consisted mainly of cocci, which were not related to the organisms in question, or that it consisted of the points of crossing of the threads.

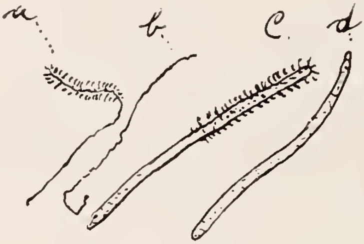

Fig. 6

In the Archiv für Zahnheilkunde, 1906 (7), I attempted with the aid of a number of drawings, to demonstrate the true relations existing between these forms. Unfortunately, the time to-day will admit of a mere mention only of the most of the points dwelt upon in this contribution. To two questions, however, it is my aim to venture an affirmative answer. (1) Does the form designated by Miller as Bac. buc. max. really owe its origin to a central body or Matrix? (2) Is the stem of Leptothrix racemosa really identical with the long, thin, apparently lifeless organisms, known as Lep. innominata?

A successful demonstration of an affirmative answer would not only establish the identity of the above mentioned forms shown by Miller, but would also prove that Vicentini's Leptothrix is nothing more than a developmental phase of these same organisms.

In order to express myself more clearly, I will first exhibit sketches of the drawings published in my contributions to the Archiv.

No. 2 shows the progressive changes which take place in the interior of the forms known as Bac. buc. max. Fig. a represents a section in which the sporelike bodies have not yet been developed; b, and c, show the initial stages in the development. Fig. d shows what appears to be the condition just prior to the advent of the spores from the interior of the thread. It is my intention to demonstrate these changes with the aid of photographs in the near future. We have now arrived at the stage where the spores have made their exit from the bacilli and are grouped around the central stem. No. 3, thereby forming Vicentini's Lep. racemosa.

Fig. a to g, Nos. 4 and 5, represent a diagramatic demonstration of the evolution of the simple thread to the completed Matrix. Under a, a Bac. buc. max. is seen, under b, the same, out of which the spores have grown, forming thereby a Lep. rac. Under c, a proliferation of the spores is shown and under d, the developing Matrix. The beginning of the thread formation is here perceptable. In Slide 5 is seen the next stage. The threads which have now about reached maturity, display all of the morphological characteristics of Bac. buc. max. In Fig. g, is shown a short segment highly magnified.

I will now take pleasure in demonstrating that which has just been thrown upon the screen with the aid of photographs. I wish to distinctly state that the photos have been subjected to no retouching or alteration whatever.

Slide 6 gives a characteristic picture of Bac. buc. max. (Grams stain.). The thread forms are, in contradistinction to the other thread forms of the mouth, filled with protoplasms and show a certain characteristic inflexibility. They take and retain the different staining processes to which they may be subjected relatively easily.

The following photograph, Slide 7, in which the spores have left their sheath (forming Lep. rac.), are quite flexible, which is also clearly shown in Slide 7 a. The sheath or stem now seem to be empty and have more or less lost their property of retaining stains, as shall presently be demonstrated.

Slide 8, brings us to the main point of my paper, to wit: Do the forms, known as Bac. buc. max. Miller, originate from a central stem or Matrix? The specimen before you has been stained with Ferrum—sesquechlroratum-Gallein, the apparent difference between this and the previous ones being due to the different modes of preparation. The sporelike bodies grouped around the central stem are clearly discernable. Toward the apex exceedingly fine hair-like processes are observed. Slide 9 is the same more highly magnified. The hair-like processes are here more evident. Slide 10, shows another stage in the development. Thread forms completely cover the whole organisms. A rod, forming the axis of the whole can readily be detected upon inspection through the eye-piece of the microscope. Gentlemen, kindly subject this photograph to a critical examination. Does it impress you as an accidental conglomeration of thousands of micro-organisms, or do you acknowledge this to be a single organism? Slide 11, is the same, more highly magnified. Slide 12 still more highly magnified. Slide 13 shows another stage. Growing from the proliferating spore around the central stem are seen the threads which have about now reached maturity. The segmentation, size, rigidity, susceptability to stains and reactions, in fact all the morphological appearances are identical with those of Bac. buc. max.

Slide 14 represents a similar stage under a higher power.

It is not my purpose to impress upon you that such specimens are easily obtainable. A careful selection of proper material, and closest attention to all details can alone lead to satisfactory results. The fact that these organisms seldom occur singly makes the accomplishment difficult and uncertain. They usually occur in indistinguishable masses or as shown in slide 15. You will observe that the bacilli are, in a sense, in pure culture, that is to say, they are free from all contamination with innominata threads. One innominata thread, however, is nevertheless present, and this one forms the axis of each single organism, as you shall presently see.

We have now arrived at the last question under consideration. I will now endeavor to explain the mode of formation of the Lep. innominata. Before entering upon this subject, however, I wish to say a few words concerning the staining of these forms. If in the process of staining, the innominata be subjected to powerful cosmetic influences, they almost invariably display a shrunken, shriveled and granular appearance. (Compare Fischer) (8). This is due to the fact that the remnants of protoplasm remaining in the sheath after the advent of the spores, and also the sheath itself, are drawn or shriveled together in lumps. This is especially apparent in specimens that have been differentiated. If on the other hand the selection of the reagents is such that all abrupt changes in the density of the media be avoided, the threads will appear in their natural cylindrical form.

No. 16 is sketched from a diagramatic illustration of my article in the Archiv. Under Fig. a, we find a Lep. rac., under b, a Lep. innom., which were stained according to Gram. Under c, we find a Lep. rac. stained with Fuchaine, under d, a segment of innom. which has been subjected to the same treatment. You will notice that the stem of the Lep. rac. under a, and the whole innom. under b, which have been stained and differentiated in like manner, show a thin granular and shriveled appearance, while the stem and the innom. which have not been plasmolyzed c, and d, (the reagents having been toned to prevent this) retain their cylindrical form. To these appearances will be referred below.

Slide 17 represents a Lep. rac. stained with Hämatoxylene. By Fig. a, we see the central cylindrical stem or more properly speaking, axis, which has already been divested of its spores. I now wish to ask those present—What remains after the whole stem or axis has been divested of its spores or peduncles?

Slide 18 brings us to another specimen stained with Ferrum-Gallein. Most of the spores have already been detached. The stem in this case is also cylindrical. I again confront you with the question: "What remains after the whole stem has been divested of its spores?" Slide 19 represents a third specimen, stained with fuchsine. Again I ask: "What remains after the whole stem has been divested of its spores?" For the answer, I refer you to Slide 20. That which remains is nothing more or less than Lep. innom.

Slide 21, shows two specimens of Lep. rac. stained by the Gram. method, and only slightly differentiated. The differentiation, however, has already sufficed to display the granular appearance in stem a, and in part of stem b. We will again consider the question: "What remains after the stem has been divested of its spores?" Slide 22, stained after Gram, verifies the solution of the problem, in that under a, we see a Lep. rac. which has parted with all its spores, forming the thin granular irregular form which has apparently lost its vitality (*"beaded" form of Williams*) and which Miller has named Lep. innom. By b, a stem is seen which responds in like manner to the Gram treatment.

To any one who is skeptical about accepting an interpretation which I do not doubt is in accordance with the facts, I beg to address the question: In what respects does the morphology of the Lep. innominata differ from that of the stem or axis of the Lep. racemosa which has parted with its peduncles?

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THE DENTIST'S INFLUENCE A FACTOR IN RIGHT LIVING.*

BY ARTHUR A. LIBBY, D. M. D., BOSTON, MASS.

Right living, as I like to interpret it, is mininizing the vices that are tearing down what nature is struggling to maintain; and since vices do persist we must learn to use them moderately. Eating becomes as much a vice, when overdone, as does smoking or drinking, and I feel that we should exert our influence among our patients in bringing about a health reform in behalf of the children and incidentally of ourselves.

Of all daily routine, the habits of slow eating and of less drinking, learned at the dining table are, to me, of utmost importance, and it is because of the benefits of these habits that we should urge the parents to be more diligent in their watchfulness. How often we hear mothers say, "I have talked to my children about eating slowly until I am discouraged." Yet these mothers have not the remotest idea what moderation means, and more than this they do not take the trouble to learn. Surely we can't expect our children to do that which we are not willing to try to do.

I admit it is a struggle, for I have been practicing it in my own home and know the discouragements, yet knowing the benefits my children are to enjoy ultimately and my own condition having been much improved as a result of moderation, I feel fully repaid for the efforts. I want to emphasize that the mothers are not to blame wholly for this unnatural manner of living, that the obligations are quite as much the father's, for through their haste to get to business a breakfast is bolted, a hurried lunch at noon and finally at night a dinner not too carefully eaten. This is a perfectly natural result after a busy day at the office and it has a marked effect upon the wife and children who, unconsciously find themselves hurrying to keep up. I feel it is more our duty, as fathers, to educate our children in this simple lesson by setting the examples than to gain a few more dollars and a wrecked system.

This is the condition that confronts us to-day and it seems to me that we are in a position to influence our patients by talking to them more about moderation at the table and the good results attending. There is a distinct difference between such moderation and Fletcherism. His book, "The A. B. Z. of Our Own Nutrition," contains many valuable hints and truths, yet it does not seem that his methods of complete mastication are practical for the average life. I have no doubt they will cure a chronic dyspeptic. A modified form of his teaching is invaluable.

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*Read before the Harvard Odontological Society, October 22, 1908.

I have been speaking of home influences and now I want to turn to school influences and mention some of the atrocities that are permitted in many of the public schools, namely: lunches and time allotted for the consumption of same. I have been inquiring of children of various localities of what the lunches consist that are supplied by the schools, and time allowed, and in all cases the fare comprises sandwiches, doughnuts, eclairs, cream cakes, pie, ice cream, milk and cocoa, and the maximum time allowed is twenty minutes. In cases where the clsses are large and go to the lunch room in sections, 10 to 15 minutes are allowed.

Is it to be wondered at that the pupils have stomach troubles, headaches, strained eyes, and a general nervous breakdown? It is a natural sequence. One little patient, 13 years of age, told me that after her lunches at school, she often had such pains in her stomach that she could not study. A young boy was successful in stowing away three portions of ice cream and six doughnuts in less than fifteen minutes and rather boasted of it. This is what I call dissipation of the worst type and more potent in its effect than the proportionate amount of liquor to the man of mature years. These are only two of thousands of similar cases. Is it surprising then that children put on glasses at an early age with such conditions existing? I am of the opinion that a large percentage of the children between the years 8 and 20, who wear glasses are doing so as a result of a weakened system enhanced by stomach troubles induced primarily by the improper use of the teeth. I may be entirely wrong in my supposition, and even though I am only half wrong, it is a deplorable condition and worthy of consideration. Certainly, the system is radically wrong as it is worked to-day, and I only see one of two remedies for the existing troubles, either the schools should discard the lunch counter and leave the masticatory training to the parents, or they should prescribe a course of proper mastication with practical demonstrations every day, and thereby help the parents in the training, which bears little importance now.

I am told by a teacher of the Emerson School in Concord, Mass., that the scholars are under the supervision of the teachers during the lunch period and that they are required to sit quietly for at least twenty minutes and eat their lunches, not even leaving their seats for water. This is a splendid example and exceptional training, much more probably than the children receive at home, thus we see that the obligations of the parents to cooperate with such exemplary training, are absolutely essential to bring about the desired results.

I feel that the greatest damage is being wrought in the upper grades of the grammar and high school courses, for it is between the ages of 12 and 20 that the greatest care is necessary. It is then that the child is maturing and growing fast, and needs all of nature's efforts to develop body and brain. Not only school work but other requirements, namely, music and dancing lessons are forced upon him and catch him in a weakened condition, through lack of proper nourishment in the proper way.

The argument is offered that the students in the high schools are too old to train, yet we at 30, 40 or even 50 years of age are willing to do anything to improve the health and resort to extreme methods to do it, by dieting or drugs. If the training had come even at the high school age we should need no extreme methods.

Parents should be impressed with the importance of setting the example, a duty to themselves and their children, and I feel that we, as dentists, may be a factor in making them realize it.

Proplyaxis, orthodontia, treating diseased mouths are all necessary parts in our work, yet I feel that we should talk more about the fundamental principals, to our patients, more about stimulating the salivary ducts and the neutralizing effects of the saliva, the stimulating of gum tissue, the strengthening of tooth structure, the close association between teeth and eyes, and I know that it will create an interest in the patient at once, and its effect will give good returns.

I have given you nothing new, gentlemen, and I hesitated to write upon a subject that is so common, or a principle that is so simple, and my only excuse is the strong feeling that the field for improvement is so great and the possibilities for the betterment of the children's conditions are so tremendous that they serve to justify me in urging a correction of the evils existing in our public schools and home life.

A STUDY OF SOMNOFORM ANAESTHESIA AND SUMMARY, WITH TABULATION OF RECORDS OF SIXTY CASES.*

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In the practice of dental and oral surgery, as in other branches of medical and surgical science, conditions very frequently arise that demand the administration of a general anaesthetic, and it is our duty, not only to the patient who places confidence in us, but also to ourselves, that, among other things, we possess a profound knowledge of the action of the drug used and its proper administration.

An anaesthetic, to be of especial value in the many minor operations which our field embraces, should at least have the following properties. It should be pleasing to the sense of smell and should have the power of inducing anaesthesia with reasonable quickness, but not with that degree of rapidity which invites depression, shock or other dangerous conditions. It should also possess a comparatively long operating narcosis, and, most important of all, it should be safe and afford a speedy, uneventful recovery with no unpleasant after effects.

In our study of such an anaesthetic the conclusions of our experiments and observations should not be drawn with over enthusiasm, neither with undue bias, but they should be tempered with conservatism, and it is with such an attitude that we undertake a study of somnoform anaesthesia. It is the purpose of this paper to consider the physiological and clinical manifestations of somnoform and later to compare the same with nitrous oxide. Before doing so, however, we shall dwell in brief upon the chemical composition and properties.

Somnoform is composed of ethyl chloride, 60 per cent.; methyl chloride, 35 per cent.; and ethyl bromide, 5 per cent. We have read that methyl chloride possesses quickness of action on account of its diffusibility, that ethyl chloride prolongs the anaesthesia and that ethyl bromide brings about a period of analgesia immediately following the narcosis. With the results of the tabulated records and the opinions of the very capable anaesthetists here this evening, who have administered ethyl chloride both as a primary to ether and in minor operations alone, we may form an intelligent idea of the value of these statements. As to the analgesic period induced by ethyl bromide, the essayist believes that it is very slight indeed and that very light operating, if any, can be done.

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*Taken from records made in the course of instruction in the department of extracting and anaesthesia of the Harvard Dental School and used herewith through courtesy of the School.

†Read before the Academy of Dental Science, Boston, Mass., Nov. 4, 1908.

In the administration of somnoform, as in other anaesthetics, we may define three stages. The first is that superficial degree of unconsciousness in which the nerve centres have been so lightly acted upon that the shock of light operating would arouse the patient. In the second stage, termed light complete anaesthesia, muscular relaxation is usually although not always present; the respiration assumes more of a regular character, but it is not to the point of snoring; the corneal reflex is rarely abolished and the pupil usually dilated, but not to the same extent that it is when the anaesthesia deepens. The third stage, deep complete anaesthesia, is marked by muscular relaxation; automatic rhythmical breathing, which is often accompanied with snoring; dilated pupil and set eyeball, with the corneal reflex generally abolished.

The following deductions are drawn not only from a tabulation of the records of sixty cases, but also from further experience with somnoform:

SEX, CONDITION, TEMPERAMENT, ETC.

Sex and Age.

Number of Male Patients	12 or 20%
Number of Female Patients	48 or 80%
Oldest Male	74 years.
Youngest Male	8 years.
Oldest Female	56 years.
Youngest Female	10 years.

Average age of 56 patients—28 years, 9 months.

Of 56 patients four were over fifty years of age. In these four cases the after condition was good with no unpleasant symptoms.

In a comparison of the sexes there seems to be no appreciable difference either in the clinical action, the amount necessary, the length of induction and narcosis or in the recovery and after effects. As in the use of any other anaesthetic, mental and physical condition, temperament, habits, etc., exert their influence in reference to quantity used, time required, physiological action, recovery and after effects. The anaemic respond quickly, but alcoholics, neurotics and the hysterical types more slowly. The three latter classes appear to be more depressed upon recovery, but their mental and physical excitement should be weighed as possible factors in this result.

Age should always be considered in the administration of any anaesthetic, but if no organic disease is present we may administer somnoform with comparative confidence. In patients with arterio sclerosis there is a possibility of inviting cerebral hemorrhage on account of the increase of blood pressure during somnoform anaesthesia. For this reason your attention is particularly called to this condition.

Quantity.—As regards quantity, it was necessary to use 6 C. C. to induce profound anæsthesia in two patients; all others required 3 C. C., with the exception of three cases in which the administration was faulty.

Alcoholics may require more than three (3) CC, but in most cases this amount was sufficient to cause profound anaesthesia and to induce an operating period of good length. Realizing the dangers and reported unhappy terminations of continuous anaesthesia under chloride of ethyl, 65 per cent. of which enters into the formation of somnoform, safety demanded that we exercise caution. Accordingly, no attempt was made to keep the patient under longer than the time afforded by a three CC capsule. In a few cases another three CC vial was given after complete recovery with the hemorrhage checked and in these patients no unfavorable symptoms were noted. It seems best, however, to perform further extraction at another date unless the case calls for immediate attention.

INDUCTION AND NARCOSIS.

Average induction of 59 cases	54.11	sec.
" narcosis of 59 cases	59.25	"
" induction of 9 cases (somnoform+air)	55.88	"
" narcosis of 9 cases (somnoform+air)	1 min. 11.3	"
" induction of 50 cases (somnoform—air)	53.8	"
" narcosis of 50 cases (somnoform—air)	57.08	"

Longest induction (3 C. C. used), 2′ ″5 narcosis 1 min.
Shortest induction (3 C. C. used), 15″ narcosis 1 min.
Longest narcosis (3 C. C. used), 2′ 30″, induction 1′ 10″.
*Shortest narcosis (3 C. C. used), 10″, induction 1′ 22″.

An analysis of the records of induction and operating narcosis teaches us that the latter period is about equal to the former in length of time, when somnoform is given without air. When it was administered with air the operating narcosis averaged fourteen seconds longer. These records show us that we may expect an operating narcosis of one minute with three CC of somnoform, which is sufficient time for the extraction of a large number of teeth.

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* Marked decrease in force of heart during administration.

CARDIAC AND RESPIRATORY OBSERVATIONS.

Pulse.

Pulse rate during administration compared with before:—

54 *Cases.*

Rate increased in 39	72.2%
Rate decreased in 13	24.1%
No change in 2	3.7%

In three cases, or 5.5%, there was an increase in the pulse rate, but a marked diminution in force during the administration.

In one case there was marked diminution in force with a decrease in rate of the pulse.

Pulse rate upon recovery compared with before:—

56 *Cases.*

Rate increased in 11	19.6%
Rate decreased in 40	71.4%
No change in 5	8.9%

In three cases there was a marked diminution in force upon recovery.

Respiration.

Rate during administration compared with before:—

46 *Cases.*

Rate increased in 31	67.39%
Rate decreased in 10	21.7%
No change in 5	10.9%

Rate upon recovery compared with before:—

54 *Cases.*

Rate increased in 25	46.29%
Rate decreased in 20	37.11%
No change in 9	16.6%

In studying the cardiac and respiratory tabulations we should take into account the fact that the pulse and respiration were no doubt increased in frequency through nervous fear before the operation in many cases. Therefore, a patient's normal pulse and respiratory rate may have been charted higher than was that patient's normal pulse and respiration. In our comparison, then, of rates before with those during administration and rates before with those after administration, it naturally follows that we should have a higher per cent. of cases in our tabulation in which the rate was increased and a correspondingly lower per cent. of cases in which the rate was decreased. From our observations on the heart beat we may state that the pulse rate was increased during administration in the vast majority of cases and that it was usually under normal upon recovery. Dr. C. M. Paden, of Chicago, who has conducted extensive investigations upon this subject, says that the blood pressure is also increased during somnoform anaesthesia.

As regards respiration, we may also say that it is generally increased during anaesthesia and that it is increased in a small majority of cases upon recovery. The breathing at no time appeared labored except in highly nervous, hysterical patients, when it sometimes assumed a spasmodic character in preliminary anaesthesia. Measured, automatic breathing was characteristic of deep anaesthesia, and in no case did the patient become cyanotic.

OBSERVATIONS ON THE EYE.

49 *Cases.*

Pupil dilated, 34	69.3%
Pupil not dilated, 15	30.7%

34 *Cases.*

Corneal Reflex abolished, 20	58.8%
Corneal Reflex present, 14	41.2%

Observations on the eye teach us that the pupil is usually dilated in the deep stage. If dilated in light complete anaesthesia, the degree of dilation is not as marked as that of deep complete anaesthesia. The corneal reflex is generally abolished in the deep stage, but we do not find it absent in deep anaesthesia as often as we find the pupil dilated. In light anaesthesia the reflex is more often present.

RECOVERY AND AFTER EFFECTS.

48 *Cases.*

After Condition—Good	39	81.26%
Fair	3	6.25%
Poor	5	10.41%
Very poor	1	2.09%
Cases with no unpleasant after effects	34 or	66.6%
Cases with unpleasant after effects	17 or	33.3%
Involuntary micturition		2
Dizziness		6

SOMNOFORM ANAESTHESIA RECORDS

Case No.	Record Book No.	Age	Sex	General Physical Condition	Method of Administration	Degree of Anaesthesia	Quantity	Induction Period	Operating Narcosis	Pulse			Respirat'n			Eye			After Condition	After Effects
										Before	During	After	Before	During	After	Pupil	Corneal Reflex	Eye Ball		
1	6092	74	M	Poor	Somno Alone	Deep Complete	3 c.c	1′ 23″	50″	92	108	94	28	?	20	...	...		Good	No unpleasant symptoms
2	6093	38	F		" "	" "	3 c.c	45″	48″	80	84	74	26	28	24	Dil	...	..	Good	No unpleasant symptoms Hysterical upon recovery
3	6094	39	F	...	" "	" "	3 c.c	50″	1′ 5″	108	120	58	26	24	25	Dil.	...	...	..	...
4	6095	38	F	Interm't Pulse	" "	" "	3 c.c	1′ 20″	1′ 10″	120	120	77	24	?	21	.	...	...	...	...
5	6090	27	F	...	" "	" "	3 c c	1′ 15″	40″	84	...	...	35	...	...	Dil.	...	...	...	...
6	6088	39	-	...	" "	" "	3 c.c	48″	1′ 22″	18	...	...	...		...	Dil.	Ab.	...		...
7	6464	18	F	Good	" "	" "	4 5 c c	45″	1′ 4″	84	108	76	16	24	28	Dil.	...	...	Very Poor	Vomiting, headache, nausea, dizziness, numbness of extremities
8	6266	15	F	...	" "	" "	3 c c	20″	50″	108	132	96	22	24	21	No Dil.	...	...	Poor	Headache, nausea, numbness of extremities
9	6318		F	Poor	" "	" "	3 c.c	22″	1′ 40″	81	80	78†	20		24	...	...	...	Good	No unpleasant symptoms
10	6373a		M	Good	" "	" "	3 c.c	15″	1′	96	120	100	16	30	30	Dil.	Ab.	..	Good	No unpleasant symptoms
11	6373b			"	" "	" "	3 c c	30″	1′ 10″	96	120	88*	30	33	30	Dil.	Ab	...	Good	No unpleasant symptoms
12	6449	10	M F	...	" "	Very Deep Complete	3 c c	40″	50″	112	120	120	21	20	26	Dil	Ab.	Up and Set	Good	No unpleasant symptoms
13	6444	36	F	...	" "	Light Compl'te	3 c.c	35″	40″	88	96*	86	18	24	20	Dil.	...	..	Good	No unpleasant symptoms
14	6508a	23	F	Poor	" "	" "	3 c c	2′ 5″	1′	84	120†	84†	20	20	23	No Dil.	Pres		Good	No unpleasant symptoms
15	6506b	23	F	"	" "	Deep Complete	3 c c	1′ 5″	1′	84	108	74†	23	21	16	Dil.		Set	...	No unpleasant symptoms
16	6578	17	M	...	" "	Very Deep Complete	4.5 c.c	20″	50″	68	96	88	20	24	28	...	Ab	Up and Set	...	Lost control of sphincters of the bladder
17	6651	17	M	Good	" "	Very Deep Complete	3 c.c	25″	50″	88	132	84	22	40	30	No Dil	...	Not Set	Good	No unpleasant symptoms
18	6718	18	F	Fair	" "	Light Compl'te	3 c.c	1′	1′ 10″	88	100	88	24	36	24	Dil.	...	Set	Good	Dizziness (slight)
19	6761	14	M	Good	" "	Deep Complete	3 c.c	50″	50″	80	96	75	20	26	17	Dil.	...		Good	No unpleasant symptoms
20	6763	20	F	Fair	" "	" "	4 c.c	30″	1′ 5″	108	116	94	19	16	18	Dil.	...	...	Good	No unpleasant symptoms
21	6811	50	F	Good	Somno. + Air	" "	3 c.c	48″	1′ 45″	88	130	78	24	22	24	Dil.	Ab.		Good	No unpleasant symptoms
22	6814	38	F	"	" " "	" "	3 c c	1′	1′ 5″	96	116	90	24	42	28	Dil.	Ab.	...	Good	Spasmodic breathing
23	6815	37	F	"	" " "	" "	3 c c	50″	42″	84	111	72	24	32	27	No Dil	Ab.	..	Good	No unpleasant symptoms
24	6817	18	F	"	" " "	" "	3 c c	58″	1′ 10″	120	114	98	30	30	27	Dil.	Ab	..	Poor	Weak generally; lost control of sphincters of bladder
25	6818	39	F	"	" " "	" "	3 c c	30″	1′ 40″	84	104	72	24	?	24	Dil	Pres.	...	Poor	Nausea; vomiting
26	6821	56	F	Fair	" " "	" "	3 c.c	50″	1′ 5″	105	112	99	24	30	30	...	Ab	...	Good	No unpleasant symptoms
27	6865	33	F	Good	Somno. Alone	" "	3 c c	1′ 5″	1′ 15″	104	120†	100	20	18	22	No Dil.	Pres.	..	Fair	No unpleasant symptoms of importance
28	6917	11	M	Poor	" "	" "	3 c c	33″	1′ 20″	100	120	60	36	36	36	Dil.	...	...	Good	No unpleasant symptoms
29	6918	13	M	Good	" "	" "	3 c.c	50″	1′ 10″	78	94*	84	16	30	20	Dil.	Pres	...	Good	No unpleasant symptoms
30	6919	46	F	"	" "	" "	3 c c	55″	45″	68	84	66	24	36	30	Dil.	Pres.	...	Good	No unpleasant symptoms
31	6920	23	F	"	" "	" "	3 c.c	1′ 5″	30″	86	90	84	30	26	36		...	...	Good	No unpleasant symptoms
32	6927	21	F	"	" "	" "	3 c c	25″	1′ 5″	86	96	88	21	?	20	Dil.	Ab.	...	Good	Slightly labored breathing
33	6997	14	M	...	" "	Light Compl'te	3 c c	50″	30″	102		100				Dil.	...	..	Good	No unpleasant symptoms
34	7064b	34	F	Good	Somno + Air	" "	3 c.c	1′ 22″	10″	124	132†	116	17	24	24	No Dil	...	..	Good	Faulty administration; no unpleasant symptoms of importance
35	7064a	34	F	...	Somno. Alone	Deep Complete	3 c.c	1′ 15″	45″	120	136	124	24	28	17	Dil	...	Set	Good	No unpleasant symptom3
36	7133	25	F	Good	" "	" "	3 c c	25″	30″	96	120	82	24	16	24	Dil	.	Set	Good	No unpleasant symptoms
37	7135	48	F	...	" "	" "	3 c.c	1′ 10″	1′ 18″	110	124	82	22	24	22	Dil	Ab.	Set	Poor	Pain in the stomach, nausea, vomiting
38	7214	26	F	Good	" "	" "	3 c.c	1′	35″	88	92	72	18	24	24	No Dil.	Pres.	.	Good	No unfavorable symptoms
39	7198	32	F	...	" "	" "	3 c.c	55″	1′ 7″	76	93	68		24	24	Dil	Ab	Set	Good	No unpleasant symptoms of importance
40	7197	14	F	Good	" "	Light Compl'te	3 c c	51″	1′	84	102	84	20	?	19	Dil.	...			...
41	7200	13	M	...	" "	Deep Complete	3 c c	47″	1′ 20″	78	76	72	21	?	24	Dil.	Pres.	Set	Fair	Vomiting
42	7201	48	F	...	" "	" "	3 c.c	55″	1′	128	96	94	22	27	20	...	Pres	...	...	Dizziness Case 7135, same patient. Nausea; vomiting.
43	7206	45	F	...	" "	" "	3 c.c	1′ 5″	35″	104	84	84	30	30	28	Dil.	...	..	...	Dizziness and chills; desire to vomit
44	7314	..	F	...	" "	Light Compl'te	3 c c	35″	45″	132	.	...	23			.	...	.	Good	No unpleasant symptoms
45	7315	25	F	Good	" "	" "	3 c c	45″	1′ 15″	76	84		20	24	22		...	.	Good	No unpleasant symptoms
46	7338	23	F	Good	Somno. + Air	Deep Complete	3 c.c	55″	1′	84	64†	80	20	32	19	Dil	Ab.	Set	..	Case 7548, same patient
47	7316	30	F	...	" " "	" "	6 c c	1′ 10″	2′ 5″	90	?	108	30	?	?	?	?	. .	...	Headache, nausea, slight numbness of extremities
48	7434	30	F	Good	Somno Alone	" "	3 c.c	1′ 8″	30″	104	90	92	20	30	24	No Dil	Pres		Good	No unpleasant symptoms
49	7437	17	F	...	" "	Light Compl'te	3 c.c	1′ 10″	20″	84	106	88	36	48	36	Dil.	Pres.	Set	...	Headache slight
50	7548	23	F	Good	" "	Deep Complete	3 c.c	40″	1′ 25″	66	96	70	22	16	28	...	...	..	Good	Case 7338, same patient; slight dizziness
51	7628	12	M	...	" "	" "	3 c.c	43″	45″	80	76	80	19	38	21	No Dil	Ab.	Set	Good	No unpleasant symptoms of importance
52	7630	45	F	...	" "	" "	3 c.c	1′ 10″	2′ 30″	84	72	78	20	28	21	No Dil.	Ab.	...	Poor	Weak generally and depressed, numbness of extremities, nausea, headache slight
53	7691	8	M	Good	" "	" "	3 c c	?	?	120	96	96	20	36	24	Dil.	Ab.	Set	Good	Headache slight
54	7695	19	F	...	" "	" "	6 c.c	2′ 40″	1′ 10″	120	96	112	24	?	24	No Dil.	Ab	.	Good	No unpleasant symptoms
55	7824	43	F	Good	" "	Light Compl'te	3 c c	53″	20″	101	86	84	24	27	22	No Dil.	Pres		Good	No unpleasant symptoms
56	7905	24	F	Fair	" "	Deep Complete	3 c c	32″	36″	108	108	76	22	22	20	Dil.	Pres	Set	Fair	Weak generally; no unpleasant symptoms
57	7908	23	F	Good	" "	" "	3 c.c	1′	45″	76	87	76	21	28	20	No Dil.	Pres	...	Good	Dizziness (slight)
58	7912	55	F	Poor	" "	" "	3 c c	50″	40″	84	93	94	26	28	24	No Dil.	Pres	...	Good	No unpleasant symptoms
59	7915	21	F	Good	" "	" "	3 c c	1′ 20″	18″	108	94	76	36	24	26	Dil.	Ab.	Set	Good	Highly nervous; weak generally
60	7960	28	F	Fair	" "	" "	3 c c	1′ 12″	55″	124	?	102	24	30	26	No Dil.	Ab.	...	Good	Slight headache
61	...			...	... ...	...	...		...								..		...	... ...
62																				... ...
63	...				.	...			.										.	... ...
64	.			...	..			.											. .	... ...
65																				... .

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a } Same patient.
b }
* Plus force
† Minus force

a. First administration.
b. Readministration upon recovery from first administration.

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Headache	7
Nausea	8

These comprised the principal unpleasant symptoms.

We may also say that the large majority of cases were in good condition upon recovery. Two-thirds of the patients presented no unpleasant after effects, and in the remaining one-third the principal disagreeable symptoms were headache, nausea, vomiting, dizziness and numbness of the extremities, with varying degrees of intensity in different individuals. Loss of control of the sphincters of the bladder was present in two cases, and 12 per cent. of the patients were very weak and suffered severely upon recovery, with one or more of the above named symptoms, although it was not necessary to resort to stimulation in any case since the condition of no patient was of a dangerous character. The case tabulated "very poor" suffered practically the same unpleasant symptoms two weeks previously under nitrous oxide. In some instances the swallowing of blood may have caused nausea, but nausea is not as commonly found following nitrous oxide, even though blood has been swallowed.

The advantages of somnoform over nitrous oxide are shorter induction, longer narcosis, a more regular breathing in the first two stages and no jactitation nor cyanosis. Its disadvantages are more pungent odor, more unpleasant after effects and slower recovery with more of a tendency to depression.

Experiences lead me to believe that it has yet to be proven as safe as nitrous oxide. However, if the administration is not continuous, if we use sound judgment in the selection of cases, if we possess the requisite knowledge of treating dangerous conditions and have the necessary stimulants always at hand we may feel reasonably safe in administering somnoform.

DISCUSSION.

Dr. Harry H. Germain.—Mr. President and members of the Academy. I feel that I am not competent to speak in regard to somnoform, as I have only seen a few cases. I must confess that I am a little afraid of it as I think that any mixed anaesthetic is as dangerous as the most dangerous of its ingredients. This we find true of the chloroform in the A. C. E. mixture, and I think it must be true of the ethyl bromide in somnoform. The amount, it is true, is small, and on that account the danger is probably slight. Ethyl chloride is pretty safe used over a short period of time, the danger point lying above ten cubic centimetres. I should not want to use over six, and here again (in the small quantity) lies the probable safety of somnoform.

My own experience lies almost wholly with those used in operations lasting beyond the useful periods of such short anaesthetics as ethyl chloride. Now the dangers of anaesthesia from any anaesthetic are primary (those occurring during the administration), and secondary, (those occurring afterward).

Under primary we place the dangers to respiration and circulation. Under chloroform the danger is primarily to the circulatory system, under ether to the respiratory, and under ethyl chloride the main danger seems to be to the respiratory system.

The secondary dangers we are apt to over-look, as for instance, the probability of pneumonia after the administration of ether. We are apt to damn the anaesthetic when this occurs, whereas it is sometimes due to the fact of an operation being in certain locations in which operations are more often followed by pneumonia. I have used cocaine in operations which were followed by pneumonia, probably due to emboli carried through the venous system to the lungs. We must bear this in mind and not always cuss the anaesthetist.

Another important secondary danger lies in certain parenchymatous degenerative changes which occur and which we cannot fully explain. In this connection we can mention acid intoxication, of which I have had a number of cases. A large per cent. of ether cases are followed by a mild form of acidosis. A few die, particularly children, although usually no harm seems to come of this change. A most tragic case of this occurred in a child operated on by a prominent surgeon for a defect in the tendo-achilles with a fatal termination in forty hours. Acidosis with a fatal termination is also not infrequent after gall-bladder operations.

A third danger comes from acute degenerations occurring in the kidneys and heart, particularly after chloroform. Very few men take these secondary dangers into account, looking only for those occurring during the anaesthesia. These are greatly overlooked in foreign countries, where chloroform is mainly used. The secondary dangers, particularly the acute parenchymatous degenerations, do not always follow the single administration of chloroform, but the repeated use, as in painful dressings. There is one notable exception to the use of chloroform abroad in the person of Kocher in Switzerland, who rejects it on account of its many secondary dangers.

There is one thing more, and that is the use of anaesthetics in oral operations where the patient is first given nitrous oxide to induce quick anaesthesia, and followed up with ether through the rectum. The patient must be carefully prepared for this and the intestinal tract thoroughly cleansed. By this method you can keep the patient anaesthetized for at least an hour without much trouble, but it should only be attempted by an experienced man. This method has been brought into prominence by Dr. Cunningham, of Boston.

A second method is by passing rubber tubes through the nose and into the pharynx, packing them with gauze down against the cricoid cartilage. This is known as Crier's method. Neither of these methods are well known, and are useful to add to our knowledge of anaesthetics.

Dr. Potter.—Mr. President, I wish first to express my satisfaction at the piece of scientific work presented here to-night, and could only desire that we have more such papers worked out and read.

Anaesthesia is something which we dentists ought to take great pride in, as we have had a large share in the bringing of it before the professions. The inspiration of Dr. Wells, of nitrous oxide fame, was transmitted to Dr. Morton, and it was he, a dentist, who first brought ether to the notice of surgeons, as a valuable aid in surgical operations.

Now the work that Dr. Midgley has presented here is work done in the extraction department of Harvard Dental School. There is a great deal of valuable material going through such institutions on which no scientific observations are made, and it is with an idea of making use of some of this material that a few of the instructors have taken hold of the problem, and in the extraction department we are, with the blanks shown you to-night, trying to make some scientific observations in regard to somnoeforme.

Somnoeforme has been given at the School since March

2nd, 1905, giving us so far a record of two years and a half use. Previous to that time we had not used it as it seemed impossible to properly sterilize the apparatus, but we have found no trouble in this direction, as everything except the celluloid face piece can be boiled and the use of a strong saturated solution of sulphate of ammonia, or of common salt preserves the rubber to a great extent. The celluloid being very smooth we have considered mechanical cleansing with soap and water sufficient.

Out of some 650 to 700 cases there have been fortunately no fatalities. There have been some disagreeable after symptoms, but in no case has anything occurred which could argue for its disuse. We do not claim for somnoeforme that it is perfectly safe, or better than nitrous oxide, but it has promised well.

One of the best articles that I have seen appears in the Vierteljahrschrift of April, 1904, and is by Dr. Joseph Madzan, of the University Dental School, of Budapest. He has drawn conclusions from a series of experiments showing the relation of the boiling points of anaesthetics to their safety, comparing them with the normal body temperature of 37°C. Now in somnoeforme we have three ingredients, namely, ethyl chloride boiling at C, methyl chloride at 23°C, and ethyl bromide at +39°C. This mixture has a boiling point of +8°C. His claim is that the safety of an anaesthetic lies in its having a boiling point at or below the body temperature, the safety being in proportion as we lower the boiling point, hence nitrous oxide with a boiling point of —88°C. is considered the safest with one death in 500,000. Next in line is somnoeforme, +8°C. with a death rate of one in 20,000; then ether, +34°C, death rate one in 14,000; ethyl hromide, +39C, one in 5,000; and lastly chloroform, +62° C, death rate, one in 3,000.

The first method of putting up somnoeforme was in a bottle with a spring sealer. This was given up because it was found difficult to confine the liquid, changes undoubtedly occurring in the proportions of the mixture through evaporation, and giving rise to unfavorable symptoms. The present form is put up in capsules of 3cc and 6cc respectively, though the one mainly used is the 3cc. In this way all changes are prevented and we are sure of always giving a definite amount in definite proportions.

Dr. Briggs.—I have been very much interested in the paper, and can say in regard to somnoeforme that, in my three or four years use of it, I have found it very simple and satisfactory. I can only recall two disturbing cases, one of collapse, and one of severe vomiting. The former was a conclusive case of hysteria, the latter patient being subject to undue vomiting upon the administration of any drug. I have used somnoeforme two and three times in succession on one patient, usually for minor operations, such as the preparing of sensitive cavities, or removal of pulps. In these cases the whole apparatus is thoroughly cleansed between each capsule to prevent the effects of any residue being present in succeeding use. I have used ethyl chloride as a spray, usually getting some general anaesthesia at the same time through inhalation. I understand that somnoeforme is more dangerous than nitrous oxide, but if one selects the cases for its use, I consider the danger very slight. I do not urge it with those who are timid as I consider such cases as among the unfavorable ones.

I have been very much interested in what Dr. Germain said regarding after effects. It is an alarm that needs to be sounded as the subject is very much overlooked. However, I do not think it has as great a part to play in our use of anaesthetics for minor operations with short periods of anaesthesia.

Dr. Ainsworth.—You spoke of using it two or three times successively. It would interest us to know the amount used.

Dr. Briggs.—I use a 3cc capsule for each administration, 9cc in all.

Dr. Elliott.—I am very much interested in this paper. I do not wish to antagonize it in any way, but I wish to explain a little apparatus which I have here, and have used for a number of years. It is an apparatus, similar to that used for somnoeforme, but minus the bag, and use a mixture of ethyl chloride 65 and methyl chloride 35, known as Narcotile. The ethyl bromide, which Dr. Germain has spoken of as the most dangerous of the three, is not present. Dr. Midgley has spoken of the better results obtained by the admission of air. Would not the carbon dioxide breathed into the somnoeforme bag reinhaled account for some of the unfavorable symptoms. With the Narcotile apparatus the patient expels all air from the lungs through a valve in the face piece and does not reinhale it.

The results from the use of Narcotile appear to be about the same as those set forth in the paper on somnoeforme, although I have noticed a less per cent. of disagreeable after effects. The period of anaesthesia is greater than with nitrous oxide, there is no cyanosis, and very little vomiting. I have had one case of vomiting in the last two weeks. The woman had eaten nothing for twenty-four hours, was very nervous, and I attribute it more to the blood swallowed. It did not last long.

The apparatus is made by C. Ash & Sons, and I think commends itself.

Dr. Merriam.—I should like Dr. Elliott to tell us something of the color of the face under narcotile.

Dr. Elliott.—I have never seen any change. I have used it at the City Hospital by special request of Dr. Crandon, where it was used to induce anaesthesia previous to the administration of ether. Unfortunately in that case the patient was a very black negro on whom no cyanosis could be noted. I had him in charge a half minute before the application of the ether cone, and he remained perfectly quiet from the time I started until the completion of the operation.

Dr. Merriam.—I have heard of the number of times Dr. Wright, of Australia, had used somnoeforme, some seven or eight thousand. I saw him give a demonstration and it seemed to me the most painful thing I ever witnessed, the man apparently being strangulated.

Dr. Potter.—Dr. Wright does not use somnoeforme, but gives nitrous oxide for about twenty seconds, and then breaks a small tube of ethyl chloride into the apparatus to complete the anaesthesia.

Dr. Moffatt.—I was very much interested in what Dr. Elliott had to say. As I understood him, he had been told the constituents of Narcotile. I should like to ask from whom he got the information, and if it was merely form a clerk in the supply house, or has he analyzed it.

Dr. Elliott.—My statement is from the circular of the manufacturer, the same as the information conveyed in the circulars of somnoeforme and I have investigated no further.

Dr. Cooke.—I should like to ask if Dr. Moffatt or anyone else analyzes everything which they use? I guess not.

Dr. Charles P. Briggs.—Do you ever see any alarming symptoms?

Dr. Elliott.—The only alarming symptoms shown in five years' use were in the case of a woman who would not take it at all.

Dr. Blaisdell.—My experience with anaesthetics is limited to their use on the tooth itself in the nature of cocaine, principally with the Saff Obtunding syringe, and its high pressure forcing the agent through the dentine to the pulp. The technique consists in drilling a hole in the dentine, at right angles to the tubuli, with a No. ½ S. S. W. round bur to a depth twice the bur's diameter. The solution used is five drops of water containing 1-6 grain cocaine, and 1-200 grain adrenalin chloride. The syringe is fitted by unscrewing the plunger with the point inserted in the solution. It is then inserted into the hole and the screw plunger turned until resistance is felt. The anaesthesia is completed by slow turning, or by giving a quick turn and holding the syringe firm for a few seconds. I have only had two cases of trouble, one in using it near the pulp with the result that the needle penetrated through and another of slight collapse lasting some ten minutes. For actual removal of the pulp when in its vicinity I have since dropped the use of the syringe, for the vulcanite pressure. Dr. Saff gave as his opinion that the collapse was due to the use of too much cocaine, a third of a turn, with the syringe held firm for a few seconds, being sufficient in close proximity to the pulp. Cases of congested pulp I have had some trouble with, but the quick pressure seems to be very satisfactory in these.

Dr. Midgley.—It has pleased me very much to have heard Dr. Germain speak of the importance of after effects, as I think many of us use ether too often in the office and then send the patient out with no regard for results that might follow.

The advantages of somnoeforme over ethyl chloride have been shown in the practice of orthopedics where a far greater relaxation of the muscles is obtained by using somnoeforme.

I was very glad to hear Dr. Potter bring out the history of anaesthetics with reference to what dentists have done along that line. Further, I will mention that ethyl chloride was introduced by a Swiss dentist, first as a local anaesthetic and later for general use.

In conclusion I will say that I have spent an evening most profitably, and wish to thank you for your kind attention.

THE DENTIST'S DUTY TOWARD ETHICAL MEDICINE.*

BY G. B. SQUIRES, PH. G., D. D. S., SOMERVILLE, MASS.

The medical nostrum and the layman's patent medicine (which is in reality a nostrum) have seen their best day, thanks to the great educational work that has and is being carried on by able editors in both of these fields.

The dental nostrum is still in our midst, and flourishing like a green bay tree. The principal reason for this is the number of trade dental journals foolishly supported by our profession. These journals are owned and controlled by commercial men.

They see no objections to advertising secret preparations—providing the advertiser pays the price, and the subscriber does not complain.

There is not a trade dental journal published that is doing anything to check the nostrum evil. There is not a trade dental journal but what carries nostrum advertisements. But from another quarter we have made a good beginning in this reform. The Journal of the Allied Societies, our only professional dental journal, has barred the nostrum from its advertising pages, and the Massachusetts Dental Society now refuses floor space to these preparations at their exhibits.

Allow me to suggest two practical ways for us to do our duty toward ethical medicine, and at the same time annihilate the nostrum.

First—Formulate our own prescriptions, and by this I mean not only for the few internal remedies we prescribe, but for tooth powders, mouth-washes, local anesthetics, etc.

An editor of one of the principal trade dental journals has taken issue with this statement—says it is not practical to write our own prescriptions for tooth powders, for example, as we could not expect the corner druggist to compound these with the same care as do the large manufacturers.

He illustrated his point by saying that the owner of a proprietary tooth powder had told him of the great care employed in preparing their preparation. How the powder was mixed by machinery and bottled by aseptic girls in hermetically sealed rooms, etc.

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*Read before The New York Institute of Stomatology, November 6th, 1908.

I merely refer to this to show the extreme credulity shown by many members of our profession, and I think we have fairly earned the title with which the proprietary men have dubbed us, namely, "The most gullible of all the professions."

Let me say right here that every dentist should select his druggist with as much care as the conservative layman does his dentist.

That any first-class pharmacy has all the facilities, in the way of mixers, sifters, etc., for making tooth powder just as accurately and scientifically as a proprietary concern. In fact, if your prescription was taken to the proper corner drug store, it would probably be compounded by a graduate in pharmacy, who would take as much professional pride in preparing it *secundum artem* as you or I would in preparing a cavity or setting a crown.

For a dentist to write his own prescriptions shows a knowledge of materia medica and therapeutics. It is broadening. It is professional.

For a dentist to prescribe a nostrum, shows lack of knowledge. It is narrowing. It is not professional.

Furthermore, by doing the former, you are serving your patients better, both from a remedial and monetary standpoint.

Let me illustrate this last statement: For two or three years I have been prescribing, in the majority of cases, the following tooth powder:

℞
Calcii carbonatis præceptitatæ..............ʒ vi.
Sodii perboratis ....ʒ i.
Pulveris saponis ....gr. xx.
Olei gualtheriæ, U. S. P....................m. xii.
Mix.

My office assistant keeps copies of the original on hand. My druggists have the powder ready to dispense.

The patient takes the prescription to the druggist, and receives the powder. What is there impractical about this?

The above formula has been adopted by the Massachusetts Dental Hygiene Council.

Let us compare it with Calox, the powder patented by a prominent man of our profession and a New York commercial house. A powder that, if we are to believe its advertisements in the popular magazines, is the acme of perfection, "the perfect dentifrice."

According to the Kirk patent, the formula of Calox is as follows:

Precipitated chalk	95 parts
Powdered castile soap	3 parts
Calcium dioxide	2 parts
Flavoring.	

Calcium dioxide or peroxide, CaO_2, is an oxidizing compound that, under certain conditions, liberates active oxygen. It is not decomposible, to any appreciable extent, in an alkaline or neutral medium. It is only when acid is present that free oxygen is produced.

R. Von Foregger and Herbert Philipp, in a paper read before the Society of Chemical Industry, New York section, January 19th, 1906, say: "Saliva being slightly alkaline in reaction, a peroxide which needs an acid reaction would be ineffective."

Calcium dioxide has, theoretically, about 14% of available oxygen; therefore, in the Kirk formula, which contains only 3% of this agent, we have forty-two-hundredths of one per cent. of available oxygen, and *this is not available* unless the saliva is acid.

Now let us consider the oxygen producing salt in the other formula.

Sodium perborate, $NaBO_3 4H_2O$, is decomposible, that is, oxygen is set free in a neutral, acid or mild alkaline solution. It is therefore *effectual in any mouth.*

This salt contains, theoretically, 10% available oxygen, and in my formula there is 12% of the perborate, which gives us .01 1-5% available oxygen, or practically three times as much as the Kirk formula.

The following comparative tests were made: One-half gram of Calox was taken into the mouth and mixed thoroughly with saliva that was decidedly acid. At the end of two minutes the characteristic H_2O_2 taste was not detected.

5CC of acid saliva were placed on a glass slab, and 200 milligrams of Calox stirred into it. The powder particles remained perfectly quiet, even under a magnifying glass, thus showing no appreciable evolution of oxygen.

5CC each of acid saliva and water were mixed and 200 milligrams of Calox added. In about 15 seconds slight movement of powder particles were seen, showing decomposition.

The same tests were made with the powder of my formula. In the first test, the characteristic H_2O_2 taste was detected in from 10 to 15 seconds after the powder was placed in the mouth. With an alkaline saliva it required 15 to 20 seconds.

In the second test, ten seconds after the powder was added to the saliva, oxygen was being evolved as shown by the moving about and disintegrating of the powder particles, which were easily observed by the unaided eye.

The third test was a beautiful illustration of chemical change. As soon as the powder was added to the mixed saliva and water, the whole mixture began to quiver, and powder particles moved rapidly about in semi-circles, showing rapid liberation of oxygen. Do not these experiments show that the amount of available oxygen in Calox is a negligible quantity, and that so far as its value is due to free oxygen, it could be consistently classed as a placebo? It also shows that by writing our own prescriptions we serve our patients best.

Furthermore, should we prescribe a tooth powder the owners of which, by patents, are apparently endeavoring to prevent, for a period of sixteen years, other concerns from manufacturing an oxygen tooth powder? Or should we use a powder where the makers so thoroughly violate Rule 6 of the Council of Pharmacy and Chemistry of the American Medical Association, which says, "No article will be admitted or retained concerning which the manufacturer or his agents make unwarranted, exaggerated or misleading statements as to the therapeutic value?"

On the Calox carton is the following false statement: "Calox has the unqualified approval of every member of the dental and medical profession." It also says, "It....prevents decay and the formation of tartar." Does any intelligent dentist believe these absolute statements?

I wish to call your attention to another oxygen tooth powder that I consider superior to Calox, as it contains a larger amount of available oxygen than the Kirk formula. This is Magnesium

Peroxide cum Creta of the British Pharmaceutical Codex (Magnesium Peroxide with Chalk), and contains:

	Gm. or c. c.
Magnesium peroxide	10.00
Powdered castile soap	2.50
Menthol	0.10
Oil of rose	0.25
Oil of wintergreen	0.50
Precipitated chalk, to make	100.00

Mix.

Also the following:

℞

Strontii peroxidi	ʒ ss.
Calcii carbonatis præcipitatæ	ʒ vi.
Pulveris saponis	gr. xxv.
Mentholis	gr. i.
Olei menthæ piperitæ	m ii.

Mix.

Strantium peroxide, like sodium perborate, gives off oxygen in acid neutral or alkaline solutions.

The editor referred to also said that it was no more essential to know the ingredients in a tooth powder than to know the composition of sapolio. That the manufacturers were reliable and could be trusted, etc.

The late Professor Miller has shown conclusively that many commercial tooth powders contain gritty substances which destroy the enamel if used for any length of time.

Dr. George Wright, of Boston, shows by analysis that some of these powders contain as high as 15% of pumice stone.

I maintain that no dentist should prescribe a tooth powder or mouth-wash unless he knows the formula. And by the formula I mean the ingredients, and *quantities* of ingredients.

That the harm to our patients in using a deleterious powder or wash may be just as great, if not as quickly apparent, as a similar internal preparation.

A dentist who prescribes a secret remedial or prophylactic preparation is on no higher plane than the layman who takes Peruna.

With the layman it is a case of dosing in the dark. While the dentist is employing sixteenth century methods on twentieth century patients. In other words, he is prescribing with his eyes shut.

Bear in mind that a nostrum is a preparation in which the ingredients or quantities of ingredients are kept secret, and do not forget that, as a rule, "secrecy and fraud go hand in hand."

That where the maker will not publish his formula, we have good reason to believe that it is either so simple he is ashamed to give it, or else because it contains something harmful. In either case we are not justified in prescribing it.

The old, old excuse that the formula is so valuable others would imitate it if it were revealed, has been thoroughly punctured by Dr. Sollmann, who has shown that, of the hundreds of formulas submitted to and published by the Council of Pharmacy and Chemistry, not one has been imitated.

Proprietary preparations may be effectually protected by trade names; also by flavor, coloring, and technique of manufacture, which, of course, may be kept secret.

We can also save our patients money by formulating our own prescriptions. Let us prove it.

Take Listerine—classed by the American Medical Association's Journal as the "bargain counter antiseptic," and from which I quote: "According to the bacteriologic tests, as quoted by Wood, four hundred and ninety-five dollars' worth of Listerine has the antiseptic action of a cent's worth of corrosive sublimate, or fifteen dollars' worth of Listerine equals a cent's worth of carbolic acid."

Drs. Verhoeff and Ellis find that full strength Glyco-Thymoline is no more effective than normal salt solution. A pint of Glyco-Thymoline sells for one dollar. A pint of normal salt solution costs one-eighth of a cent. In other words, for one dollar one may produce 800 pints of normal salt solution.

What moral right have we to fleece our patients by prescribing these fancy-named and fancy-priced preparations when we can write a prescription for some simple preparation that will be just as effectual, and often more so, and cost our patients less?

I consider the following mouth-washes superior to any nostrum on the market:

MILD ALKALINE WASH.

℞

Sodii borobenzoatis, N. F.	ʒ xii.
Resorcnolis	gr. lxxx.
Glycerini	ʒ iv.
Alcoholis	℥ ii.
Olei menthæ piperitæ	m iv.
Olei cinnamomi	

Eucalypotis, aa	m viii.
Talci purificati, q.s.	
Aquæ destilatæ, ad	o i.

Mix. Sig.—One part to 1 or 2 of water.

℞

MILD ACID WASH.

Thymolis	
Mentholis, aa	gr. ii
Glyceriti boroglyceridi	℥ i.
Olei pini sylvestris	m xv.
Alcoholis	℥ i.
Talci purificati, q. s.	
Aquæ destillatæ, ad	℥ viii.

Mix. Sig.—One part to 2 or 3 of water.

LIQUOR ANTISEPTICUS. U. S. P.

Containing 2 per cent. boric acid, 1 per cent. benzoic acid and thymol, eucalyptol, essential oils and 25 per cent. alcohol.

LIQUOR ANTISEPTICUS ALKALINUS. N. F.

Containing glycerine, potassium bicarbonate, sodium benzoate, sodium borate, thymol, eucalyptol, oil of gaultheria, and peppermint, and coloring.

GLYCERINUM THYMOL COMPOSITUM OF THE BRITISH PHARMACEUTICAL CODEX.

(Compound Glycerine of Thymol.)

	Gm. or c. c.
Sodium bicarbonate	1.00
Sodium borate	2.00
Sodium benzoate	0.75
Sodium salicylate	0.50
Menthol	0.03
Thymol	0.05
Eucalyptol	0.13
Oil of pine	0.05
Oil of wintergreen	0.03
Alcohol	2.50
Glycerine	10.50
Solution of carmine	0.50
Distilled water, to make	100.00

Mix.

Wadsworth tells us that dilute alcohol with normal salt solution, sodium bicarbonate, and glycerine, makes a most effectual mouth-wash.

I submit the following:

℞

Sodii chloridi	gr. xxxv.
Sodii bicarbonatis	gr. xx.
Glycerini	ʒ iii.
Alcoholis	℥ ivss.
Aquæ menthæ piperitæ	℥ ii.
Aquæ cinnamomi, ad	℥ viii.

Mix. Sig.—Use with equal parts of water.

Sodium perborate makes an inexpensive and effectual mouthwash. I prescribe it as follows: One-fourth teaspoonful dissolved in one-fourth glass of water, to be used during the day. Make fresh each morning. If patient objects to the taste, a drop of an essential oil may be added to each mix.

Sodium perborate, when dissolved in water, decomposes into H_2O_2, and Sodium borate. In other words, we get a freshly prepared alkaline solution of hydrogen dioxide.

The manufacturers of dental nostrums are expert in two things, namely, getting up a preparation that tastes good, and bluffing the dental profession. They know that if the laity like the flavor, and they can cajole the dentist into prescribing it, thus making them their free advertising agents, that the rest is simple and exceedingly profitable to them.

And I drop my head in shame whenever I receive from some nostrum manufacturer a batch of testimonials written by dentists. Not that I care so much because some particular dentist has become a "stool pigeon" for a nostrum maker, but because by doing this he pulls you and me and the dental profession down with him.

Such advertising agents remind me of the dentist who extolled Liquozone to the sky as "a most remarkable antiseptic," but who knew nothing of its composition, except that the maker told him it was "liquid oxygen."

Samuel Hopkins Adams, not being as credulous as the above individual, has this to say about the "Liquozone is liquid oxygen, that is all" statement: "It is enough, that is, it would be enough if it were but true. Liquid oxygen does not exist above a temperature of 229 degrees below zero. One spoonful would freeze a man's tongue, teeth and throat to equal solidity before he ever had time to swallow. If he could, by any miracle, manage to get it down, the undertaker would have to put him on the stove to thaw him out sufficiently for a respectable burial. Unquestionably Liquozone, if it were liquid oxygen, would kill germs, but that wouldn't do the owners of the germs any good, because he would be dead before they had time to realize that the temperature was falling."

He then gives the analysis of Liquozone as follows:

Sulphuric-acid, about nine-tenths of one per cent.
Sulphurous-acid, about three-tenths of one per cent.
Water, nearly ninety-nine per cent.

The second plan is, for every dentist who is taking a trade journal that carries the more objectionable nostrum advertisements to write a vigorous protest to the publishers. If this fails of results, then cease subscribing to and discontinue using the goods of this concern.

To illustrate how effectually this method works, we may refer to the Ohio State Medical Association, which some time ago formed the "Ohio League for the Suppression of Fraudulent Advertising."

The first work of this league was directed against the religious journals of Ohio, with little results, however, until they communicated with every minister and standing committee connected with the churches, calling their attention to the nostrums being advertised in these journals, and asking them and other subscribers to send protests to these editors.

The result was the elimination of the fraudulent nostrum advertisements from every religious journal in Ohio. Thus showing that the power for good rests with the subscriber.

The editor of the American Medical Association's Journal, in commenting on medical journals carrying nostrum advertisements, says: "If the reader does not object, the publishers may feel justified in admitting such advertisements as these, which are among those to be found in the January number of the American Journal of the Medical Sciences: Bovine,....Antipholgistine, Antikamnia, Listerine....and Papine.....

"They do not realize that their silence is taken by the publisher as a quasi endorsement, or at least as indicating that they do not object to such advertisements. Meritorious medical (and dental) publications should be liberally supported. They are well worth the subscription price asked for them, but, on the other hand, the publisher should not be allowed to deliver ripe and rotten fruit in the same basket."

If we are subscribing to a journal that carries the advertisement of Antikamnia, "the twice exposed fraud," as the American Medical Association's Journal terms it, or other nostrums that have been exposed by the Council on Pharmacy and Chemistry, it is our duty, if we remain subscribers, to see that the publishers eliminate the "rotten fruit."

Let every member of the Allied Societies follow out the suggestions contained in this paper, and we shall have taken a long step toward ethical medicine and the checking of the nostrum evil.

Futhermore, it will be a step, the necessity and importance of which, other societies are bound to recognize and follow.

RECENT DENTAL LITERATURE.*

BY FREDERICK S. FOGG, D. D. S., D. M. D.

In preparing this paper on Recent Dental Literature, which was assigned to me by the chairman of your executive committee, I have done it with the feeling that many of you are better qualified to present the subject than I; but feeling that a member of such an organization as ours, devoted to the promotion of the interests of its educational mother, our Alma Mater, and to the professional development of its members, owes to that society something more than the mere squaring of his account on the treasurer's books and listening to the papers and discussions with more or less of regularity, I have gathered a few facts and observations which will direct our thoughts for a little while to some phases of our newer professional literature, making no claims as to originality or comprehensiveness.

A literature is essential to the development of a profession. It has been said to be the storehouse of the knowledge of that profession. Part of it the record of careful research and experiment, the result of a solid preliminary training and painstaking application, clearly and concisely expressed, accurate and helpful; part of it based on inadequate preparation, superficial investigation, obscurely clothed and expressed, and more or less misleading; it is still the literature of the profession and the storehouse of its knowledge.

A profession's journals and books constitute its literature. Journals contain much that is of slight importance, and many articles are merely immature impressions of the writer upon a subject comparatively new to him and of little value except to start a discussion; and in very many instances the discussion is of much greater value than the paper itself. Still as a medium of record for experiments and observations of scientific investigators, though the subject be not entirely worked out, the journal plays a most important part in the advancement of professional knowledge; and to him who through experience and observation has attained the ability to discriminate wisely, they offer the principal means of keeping fully abreast from month to month with the latest thought and experiment.

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* Read before Boston and Tufts Dental Alumni Association, November 11, 1908.

Books on the whole contain maturer thought in more concise form, and especially as works of reference are to be prized. Authors always give their best work to their books, and while the journal article is usually devoted to but a single phase of the subject, the book presents the matter comprehensively, concisely and more or less well balanced, according to the ability of the author.

It is true that dentistry is largely an art and requires manual dexterity and artistic perception for its successful practice, and that these cannot be obtained by merely reading about methods and systems; at the same time problems are constantly presenting whose speedy and correct solution is greatly facilitated by a broad professional culture. Quite a number of dental books have been produced during the last few years, and there seems to be a tendency toward a more and more scientific presentation of the several subjects under consideration; and in a report of this kind it may be well to mention some of them. The book literature of our profession has never been very profuse, yet half a dozen years ago, which is perhaps far enough to go back in treating of "Recent Dental Literature," there were numerous good text-books covering all the important phases of practice.

Broomell's "Anatomy and Histology of the Teeth," and Marshall's "Injuries and Surgical Diseases of the Face and Jaws," issued in 1902, filled important places in their respective departments.

In 1903 Talbot's "Irregularities" made its third appearance in revised form, and in the same year appeared Arthur S. Underwood's "Studies in Comparative Odontology" and Kenneth W. Goadby's "Mycology of the Mouth," a valuable text-book for the student of oral micro-organisms.

At this time Professor C. N. Johnson issued a little book of

159 pages on "Success in Dental Practice," a subject previously neglected almost wholly by our writers. In it he presented the ethical and business aspects of dental practice in a fascinating, instructive and elevating manner. Dentists have been accused of being poor business men, and to establish a more creditable state of affairs in this respect this little work is an excellent guide for recent graduates, and of more or less value to the established practitioner.

"The Histology and Patho-Histology of the Teeth and Associated Parts," by Arthur Hopewell Smith, a splendidly written work of 624 pages, with 493 illustrations, including 300 original photo-micrographs and two colored plates, published in 1903, was probably the best work upon the subject which had then been published. The author carefully and judicially weighed the results of his own investigations, as well as the mass of literature on the subject produced by Black, Williams, Charles Tomes, Mummery, Wedl, Kölliker, Magitot, Röse, and many others, and the result is a valuable treatise and reference work for advanced students.

"Anaesthesia and Anaesthetics: General and Local, for Practitioners and Students of Medicine and Dentistry," issued by Joseph M. Patton, M. D., of Chicago, in 1903, is a resume of our knowledge of the time on the subject, and a systematic and comprehensive elementary work of value for students.

In 1904 appeared the fifth edition of Essig-Koenig's "Dental Metallurgy," illustrated with seventy-six engravings, revised and enlarged, with much of the added material of unquestionable value.

"Notes on the Treatment and Filling of Teeth," by William Cass Grayston of London, published in 1904, is a practical little book of special value to the young graduate, who needs the advice of an older professional brother, whose years of clinical research and observation have tested the favorite methods and eliminated the impracticable. Relief of Pain, Removal of Tartar, Pyorrhea Alveolaris, Filling Teeth, Porcelain Inlays and Treatment of Diseased Conditions of Teeth Preparatory to Filling are the chapter subjects.

"Orthodontia and Orthopedia of the Face," issued by Dr. V. H. Jackson in 1904, presents 760 original illustrations portraying very fully the methods of the author, using chiefly the so-called "crib" appliances, whose construction is well depicted. Beginners may be confused by the multiplicity of apparatus, but practitioners who agree with his views will find in this volume a useful reference book. The fundamental principles of Orthodontia and the subject of Facial Art are given but little attention.

In its fourth edition, published in 1905, Guilford's "Orthodontia" is almost entirely rewritten, with such important additions as chapters on "Facial Harmony and Occlusal Relations," "Materials and Construction of Appliances" and an "Outline of College Technique Course." The fundamental principles of Orthodontia are presented in a simple and sympathetic style and will be a decided help to beginners in mastering the fundamentals of orthodontia.

The second edition of "A Manual of Mechanical Dentistry and Metallurgy," issued in 1905 by Dr. George W. Warren, revised and partly rewritten, is a concise but comprehensive treatise on the subject, presented in a style clearly intelligible to beginners, for whom the book appears to be primarly intended.

"Developmental Pathology," by Dr. Eugene S. Talbot, published in 1905, is a distinct addition to the broad scientific aspect of our professional study. It is made up largely of articles which had previously appeared in periodicals.

In 1905 Dr. Elgin McWhinney presented the subject of "Oral Pathology and Therapeutics," in a book of 233 pages, with eighty-four illustrations, which had previously appeared serially in the "Items of Interest."

In "Notes on Dental Porcelain," by Dr. V. Walter Gilbert, published in 1905, the subject is treated in a practical and scientific manner. The author presents a systematic study of the physical properties and peculiarities of porcelain. He insists that the use of porcelain should be mastered before practical cases are undertaken, and outlines a course of tests and experiments which will perfect the beginner in the handling of this material.

One of the most admirable text-books we have had on Operative Dentistry is the "American Text-Book of Operative Dentistry," edited by Dr. E. C. Kirk; and the third edition, published in 1905, revised and enlarged, is no discredit to the editor. Death having removed Drs. Burchard and Goddard, Dr. Burchard's chapters have been revised by Dr. Kirk, and in place of Dr. Goddard's chapter on Orthodontia has been inserted a treatise by Dr. E. H. Angle. The latter has been criticised for not mentioning in this college text-book appliances and methods belonging to other systems than his own; but as his contribution is so complete and efficacious in itself we may excuse him for limiting himself to those methods which he personally believed to be the best. There is a tendency toward a closer specialization in our dental books, and in this edition the general chapter on "Dental Embryology" has been supplanted by a special chapter on "Dental Histology, with Reference to Operative Dentistry," by Dr. Frederick B. Noyes. The new chapters on "Use of the Matrix," by Dr. William Crenshaw, and "Restoration of Teeth by Cemented Inlays," are comprehensive, concise and practical. Other contributors are Drs. C. N. Pierce, James Truman, Louis Jack, E. T. Darby, S. H. Guilford, M. H. Cryer, A. H. Thompson, Lois Ottofy, D. M. Clapp, C. S. Case and J. D. Thomas.

In his volume on "Lecture Notes on Chemistry for Dental Students," published in 1906, H. Carlton Smith, lecturer on physiological chemistry at Harvard Dental School, has produced a practical, compact, yet sufficiently comprehensive book upon this subject, which will not only meet the needs of the undergraduate, but will also prove helpful as a reference book for the progressive professional dentist. He assumes that the reader will have been well grounded in the elements of chemistry, so devotes himself wholly to the special work.

When Dr. Hart J. Goslee's 292-page book on "Crown Work" appeared in 1903 it was regarded as a very practical and quite complete treatise on the subject; and when in 1907 it was republished with the addition of 197 pages on "Bridge Work," the author found the changes and additions in the first part demanded by the advance of time to be surprisingly few. "Principles and Practice of Crown and Bridge Work," the complete volume covers 505 pages, is well illustrated with 917 cuts, and discusses the methods and principles of this department with ability and comprehensiveness. The author directs attention to the need of keeping in mind the disadvantages as well as the advantages of this class of work, and of making judicious choice in each case from among the various methods of replacing lost teeth.

The third edition of the "American Text-Book of Prosthetic Dentistry," edited by Dr. Charles R. Turner in 1907, is largely rewritten. While presenting the mechanical procedure with no less fullness and accuracy of detail than the previous edition, the editor takes the more advanced position that mechanics in dentistry should be treated as a means to an end rather than an end in itself, and with this aim in mind, he presents a study of principles from which the student may recognize the needs of each particular case and definitely restore lost function and correct artistic deficiencies. Two new chapters have been added, one by Dr. Turner on "The Human Dental Mechanism, Its Structure, Functions and Relations," presenting a study of the dental mechanism as a perfect apparatus, and the other by Drs. Turner and A. H. Thompson in collaboration on "The Modification of the Dental Mechanism by Age, Temperament and Use," and together these set forth in detail and most lucidly the engineering features of the dental apparatus, whose functions it is the province of the dentist to restore in supplying prosthetic appliances. The reviewer in the Cosmos credits this work with "being an epoch-making book in that it is the first and only comprehensive treatise in which from first to last the true purpose and dignity of mechanical dentistry as an art has governed the treatment of the subject in all its relations." The book contains 874 pages and 916 engravings. The chapters on "Orthodontia" and "Celluloid and Zylonite" have been omitted, the former being sufficiently treated in special works, and the latter materials being used so little and the methods of their use changing so slightly as to render it inexpedient to devote the space to them in this edition.

During the seven years between the publication of the 300-page previous edition of Angle's "Mal-Occlusion of the Teeth" in 1900, which the author intended to be the culmination of his labors in this line, and the present edition, greater advances have been made in orthodontia than during any previous seven years; so this delightfully written book of 625 pages and 641 beautiful illustrations, issued in 1907, is an important addition to our recent literature. The author now claims that orthodontia is more nearly an exact science than any other branch of dentistry, or possibly of medicine. In the previous edition, Dr. Angle emphasized the so-called "line of harmony," passing from the frontal eminence down through the middle of the ala of the nose to the mental eminence, as an ideal to be followed in developing facial contour; but in the present edition he admits that this is impracticable and misleading, for notwithstanding the beautiful harmony and proportions of that ideal, it was based on the pure Greek type, which had long been the model for students of facial art; and its range of application has been found to be very limited in relation to faces of our mixed types. There is no fixed standard of beauty, and the aim should be to harmonize the mouth with the other features. He calls attention to the fact that eight years ago the demand of art and occlusion were supposed to be independent; but he now lays down as an inviolable law the rule which he advocated in 1903, that the best harmony requires that there shall be the full complement of teeth, and that each tooth shall be made to occupy its normal position, holding that the inharmony in the balance of the mouth with the rest of the lines of the face exists just in proportion to the extent of the mal-occlusion. In this he differs from many of the other foremost men in orthodontic practice, who believe that in certain exceptional cases the best effect cannot be obtained without extraction. The general plan of treatment of the three classes of mal-occlusion is mainly the same as in the edition of 1900, though procedures in many cases of classes II and III are modified by the development of the principle of intermaxillary anchorage. The subject of retention has been much elaborated. Many appliances have been placed in the appendix for the reason that the author does not now consider them as efficient as the perfected expansion arch, though in some cases many of them are of great value. An entirely new feature of this edition is the publication of photographs of patients and casts taken after the lapse of a few years following the completion of the regulating, thus demonstrating the effectiveness of the procedures. The chapter on "Treatment of Fractures of the Maxillae" has been omitted as foreign to the subject of orthodontia. This he proposes to revise and publish separately.

During the last six weeks three important additions to our book literature have been made, Johnson's "Operative Dentistry," a new revision of Burchard's "Dental Pathology," and a two-volume work on "Operative Dentistry," by Dr. Black.

The new text-book on "Operative Dentistry," edited by Dr.

C. N. Johnson, was prepared with the aim of condensing the latest thought into the smallest possible space consistent with a lucid presentation of the subject; and in this he has produced an admirable text-book. It contains 746 pages and 618 illustrations, most of the cuts made especially for the book. Dr. H. A. Pullen's chapter on "Orthodontia," comprising 241 pages, with 277 illustrations, is comprehensive, yet concise and practical, and chapters by Drs. Johnson, Turner, J. P. Buckley, W. A. Capon, Gorgas, Patterson, Webster, Prinz, Kells, Cook, and Newkirk are well written and illustrated. Dr. J. E. Nyman's chapter on "Gold Inlays" was entirely rewritten to bring it up to date after it had been set up in type; and Dr. Hillyer's chapter on "Management of Office Practice" gives twenty-two pages of valuable and conservative advice to the young dentist, as well as hints of interest to the established practitioner.

The 1908 edition of Burchard-Ingles' "Dental Pathology and Therapeutics," rewritten by Dr. Otto E. Ingles, is fully abreast with the advanced position the subject has reached, and is still recognized by authorities as perhaps the greatest work on the subject in existence. Believing that a rational system of dental practice must be based on the same principles which underlie general medical and surgical practice, the writer presents up-to-date chapters on general principles, general and local causes of diseases, disturbances of nutrition and of the vascular system, as a preliminary to the detailed study of local conditions. And this special embryology, anatomy, histology, pathology and therapeutics, both medicinal and operative, are presented in so careful, systematic, and comprehensive a manner as to form an invaluable text and reference book, worthy of an honorable position beside standard treatises in other departments of medical and surgical practice.

The monumental work just issued by Dr. G. V. Black in two large quarto volumes is a credit to the author and a most valuable addition to the reference literature of the dental profession. In it are placed in permanent form the results of his research and experiments in atrophy, erosion and caries, the physical characteristics of the teeth and filling materials, together with those experiments determining the force used in filling teeth and the force of mastication under varying conditions. In the first volume he gives a serious study of the pathology of the hard tissues of the teeth, atrophy, erosion and caries. He declares that "the time has passed for including in one book all of the subjects of dentistry," and leaves untouched the pathology of the soft tissues, the dental pulp and peridental membrane, alveolar abscess, pyorrhea, etc. The second volume is mainly devoted to the technical procedures in filling teeth, with frequent references to or reminders of this pathology, that the student may not lose sight of the fact that those mechanical details are but the means to an end and not an end in themselves. He states that the causation of atrophy and the principal forms of injury to the hard tissues of the teeth seem to have been very well made out, though much of the detail of these injuries remains to be discovered in the future. He treats this subject very fully in 22 pages, with 47 illustrations, many of them full page. The author takes exceptions to the usual view regarding the etiology of "Hutchinson's Teeth," stating that he has seen such cases which "were in no way connected with a syphilitic taint of any kind," that it is the condition of mal-nutrition which is the cause of the defect, no matter what the origin of that condition. In this he differs from Burchard, who upholds Hutchinson's theory, and says that while not all syphilitic children present these appearances, and while "appearances said to be identical with them are observed in children said not to be syphilitic, yet the presence of such teeth is usually regarded as a valuable diagnostic sign of hereditary syphilis, and their presence accompanied by interstitial keratitis (hazy cornea) and chronic catarrh of the middle ear are held to be positive signs of hereditary syphilis." The author mentions certain rare cases of atrophy in which the entire enamel of a whole denture was deficient in interprismatic cement substance; and of these cases the pathology is yet to be worked out. Dr. Black regards the information regarding erosion as far from complete, and feels that its apparent increase in frequency and the great damage it is doing call for the closest study that the profession can give. He is not satisfied with any of the current theories regarding its etiology, but thinks that when the cause is determined it will be found in some general dyscrasia. The subject of "Caries" is presented in 93 pages, with 99 illustrations. In his historical introduction he quotes an anonymous German writer of 1530, who says that "caries is a disease and evil of the teeth in which they become full of holes and hollow, especially so when they are not cleaned of clinging particles of food which decompose, producing an acid moisture, which eats them away and destroys them, so that finally with much pain they rot away little by little." This writer also mentions the use of gold as a filling material and mentions Mesu as an authority, a man who lived 200 years earlier, but whose writings are not known to have been preserved.* After entertaining the inflammatory theory of a century and a quarter ago, and the chemical theory of half a century later, we have finally adopted one not unlike that of Mesu, nearly six centuries old. Experiments of Williams, Michaels, Kirk, Rose and others are given in addition to his own. In the excavation of cavities whose forms were so ably described by Dr. Strout last spring,† Dr. Black aims at exactness in instrumentation, and to that end has introduced a complete set of 102 excavators and chisels, accurately made and numbered according to size, angle, etc. From this is selected the so-called "University Set" of 48 and then the "Short Set" of 25, which is the smallest possible number that can be used effectively. The chapter on "Nomenclature" is full and concise, the book is written in a pleasing style, the illustrations are profuse, and on the whole the profession is under deep obligation to Dr. Black for his labors in this direction.

Two important books, Dr. Calvin A. Case's "Dental Orthopedia" and Guerini's "History of Dentistry," are in press, and with these in addition to the splendid works which have already appeared, the year 1908 will be remembered as one rich in dental literature in book form.

Dental journals are more numerous in this country than in any other. While there is still and probably always will be more or less repetition, on the whole the articles are of a higher grade and better written than a decade ago, and they cover the whole range of professional thought.

A number of very good articles have appeared dealing with that hitherto much neglected side of dentistry, the business side. Considerable attention has been given to popular dental education, legislation, dental history, that fertile subject of professional dental education, orthodontia, prosthodontia, etc. Many articles have appeared dealing with porcelain and gold inlays, in which the practice of a large minority of practitioners seems to have been practically revolutionized, though many of the best men still hold a cautious attitude toward this class of operations, and many who were recently radical in their enthusiasm have reverted to a more conservative position.

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* The Dental Cosmos questions the accuracy of Dr. Black's references to Mesu (Mesue) in a review in the November, 1908, issue.

† Vide, the Journal of The Allied Societies, vol. III, page 215.

Opsonism has not received as much attention among us as from the medical profession, though treatments have been applied with varying success in some oral suppurative conditions.

Prophylactic treatments and oral prophylaxis have claimed much attention, and this has tended to raise our standing among medical men in general; for in so far as we take into consideration and act upon general surgical principles, to that extent are we working in harmony with them, and to that extent are we raising ourselves above the plane of "Tooth Carpenters," whose horizon is limited by the boundaries of a tooth cavity.

And in this connection may be mentioned those investigations, scientific in their nature, and formerly regarded as of abstract interest only. The profession has grown to a fuller realization that the mouth is an integral part of the human body, and its best investigators are earnestly striving to learn just what those relationships have to do with susceptibility and immunity in caries, erosion, that bête noire of dentistry pyorrhea alveolaris, as well as the acute inflammatory conditions whose treatment is constantly within our sphere. The solution of these problems has an intensely practical significance; and so we realize that the work of such scientific investigators as Black, Miller, Röse, Williams, Kirk, Michaels, Head, Goadby, and the others, is of more than theoretical interest to us.

To attempt even a brief comprehensive review of our periodical literature would carry the subject beyond the reasonable limits of such a paper as this; and I will close with this prophetic glimpse of the future from an editorial in the May Cosmos. "Dental practice is gradually shedding its swaddling-clothes of empiricism and adopting the methods and manner of rationalism; a new literature, one worthy of a scientific profession, is making its appearance, and far from being written out, the dental profession is just beginning to write the most important chapter in its history."

REPORT OF COMMITTEE ON ALLOYS.

New York, December 21st, 1908.

To the New York Institute of Stomatology:

Your "Committee on Alloys" respectfully reports, that since the publication of the analyses of six amalgam alloys of those on the market, the following letter has been received from the S. S. White Dental Manufacturing Co.:

Dr. Geo. S. Allan, New York, N. Y.

Dear Doctor—In the June issue of "The Journal of the Allied Societies," at pages 172-173, there appears a "Report of Committee on Alloys," signed by yourself, Dr. Arthur H. Merritt, and Dr. J. Morgan Howe. As your name is first, we presume your are chairman of the Committee, hence we address you.

We desire to ask a correction of a statement in the paragraph beginning, "We think it safe to assume," etc.

The assumption is safe, but what your Committee regard as a "lesson worthy of consideration," is entirely wrong as to its statement of fact, if we read it correctly; so that the whole fabric of reflections based on that incorrect statement falls to the ground.

The report says:...."and we regard it a lesson worthy of consideration that the makers of the highest priced compounds have enjoyed the benefit of such extra profit without any revelation of the similarity of composition being made by those making practically the same alloy for one-half the price."

This company is the manufacturer "making practically the same alloy at one-half the price," and presumably the one who failed to reveal the fact. Let us see.

True Dentalloy was introduced to the dental profession in the *Dental Cosmos* for June, 1900. The first advertisement contained the story of its development along the lines laid down by Dr. Black, and told its qualities, summing up in this statement: "In every essential characteristic we believe True Dentalloy to be superior to any of the other alloys made after the method of Dr. Black."

In the *Dental Cosmos* for March, 1901, page 36 of the advertisements, moved thereto by the refusal of a number of dealers to supply True Dentalloy to their customers—substituting it by the other higher-priced Black's method alloys—we printed another advertisement which was more explicit. In that advertisement we used this language:

"We mean exactly what we say when we repeat that True Dentalloy is at least the equal in the qualities which make a successful, satisfactory filling-material of any other alloy made after Dr. Black's methods, no matter what the price. As to the price, well, we again stake our reputation on the statement that True Dentalloy costs as much to produce as any of the others—at least as much as they ought to cost. But it don't pay so large a profit on the ounce. No, it does not, and this is the simple reason why some dealers put difficulties in the way of dentists obtaining it."

In 1903, in a circular to the dental profession, we used still more explicit language, as follows:

"The important difference between True Dentalloy and the others made according to Dr. Black's method—that is, *if* these others are made by that method—is in the prices. True Dentalloy, $1.50 the ounce, the others, $3.00.

Any one at all familiar with Dr. Black's researches into the amalgam question knows that alloys made after his method have substantially the same composition, are put through substantially the same processes, and if made with equal skill and judgment have substantially the same properties."

We enclose you a copy of this circular and of two other later ones, in which the same statement is made. The statement that True Dentalloy is at least equal to any other alloy made by Dr. Black's methods, has appeared substantially in practically every advertisement of True Dentalloy which we have issued.

We have shown you that we have endeavored from the first to impress upon the dentists of the world that the only essential difference between True Dentalloy and the other Black's method alloys was in the price; that we have not "stood pat" in the "maintenance of that complaisant acceptance of secret formula products."

That our statements regarding the matter have escaped the attention of the members of your Committee is a cause for regret to us. Our advertisements are carefully prepared, truthful statements intended to give the dental profession reliable information concerning our business and the goods we manufacture. To this end they are couched in moderate language. Superlatives find small place in them. What they say is always well within the facts,—to be depended upon as surely as the goods which they represent.

Dr. Black's methods were made free to the world of dentistry through the *Dental Cosmos*. As to secret formulae, your report well quotes Dr. Black: "Any one who knows the methods which I have developed, and has made a sufficient study of the metals to enable him to make alloys understandingly, needs no formulae."

In view of the fact that your report—inadvertently, no doubt—misrepresented our position, is it too much to ask that this correction be given the same publicity?

Yours truly,

THE S. S. WHITE DENTAL MFG. CO.

And to this your Committee have made the appended reply:

NEW YORK, December 18th, 1908.

The S. S. White Dental Mfg. Co., Chestnut Street, Cor. 12th Street, Philadelphia, Penn.:

DEAR SIRS—In response to your letter of November 28th addressed to the Committee on Alloys of The New York Institute of Stomatology, we beg to say of your comments on our report, relative to the absence of any revelations having been made by the manufacturers, concerning the similarity of the alloys under investigation; we do not consider that in that particular our report "is entirely wrong as to fact," nothwithstanding the proofs you have kindly furnished us, that you repeatedly claimed in advertisements that "In every essential characteristic we believe True Dentalloy to be superior" to those with which comparisons were made, also that "the important difference between True Dentalloy, and the others . . . . is in their prices," and other statements of a similar nature. Such claims, we think, can hardly be called a revelation of the similarity of composition. We can only concede that although these statements seem to be true, they were advertising claims, and good as far as they went. They were not, it seems to us, sufficiently definite to make much impression upon the minds of dentists; and that the purveyors of similar goods did not expect that they would be taken seriously, is obvious in the fact that they did not change their prices.

If your advertisements had contained a revelation of the exact formula of your True Dentalloy, and what you found by analysis to be the formulae of the alloys of the makers of similar compounds, it might have been taken more seriously by your competitors.

It is significant, that shortly after the report of analysis obtained by us was made public, a report which revealed what you had claimed, the makers of certain alloys, higher priced than yours, should see fit to reduce their prices.

Our contention is that dentists have the right to know the composition of all compounds that they use. The absence of such knowledge, often enables the makers, and sellers of such secret formula compounds to exact exorbitant prices, and it frequently leads unsuspecting practitioners to use compounds that contain ingredients that they wish to avoid. Furthermore, we deprecate the common acceptance of the situation as it exists; of dentists claiming to be professional men, accepting without demur the prescription of material for their use without seeking to know its composition.

We are quite willing to admit that you have, as you say, "endeavored from the first to impress upon the dentists of the world, that the only essential difference between True Dentalloy, and the other Black's method alloys was in the price," but we cannot concede that these endeavors constituted a *revelation*. You made claims, but we furnished the proof. We would like to see the dentists of the world demand the abrogation of all secrecy in compounds offered them, and we regard the results of our report, making the revelation that it did, as proving the desirability of such requirements.

We think if manufacturers of compounds for dental use were to announce their formulae, they would be giving evidence of a desire to conform to a just professional sentiment which we hope is growing, and the opportunity to charge excessive prices, out of proportion to intrinsic value, would be removed. Any other course than that, is seems to us, is "standing pat" on the secret formulae program. GEORGE S. ALLAN,

ARTHUR H. MERRITT,
J. MORGAN HOWE, *Chairman.*

We will not presume to settle the question whether we have misrepresented the complaining party in our former report. Let each decide for himself after noting the quotations of advertisements in their letter and our view of what a revelation really is, and should be.

Yours respectfully,
GEORGE S. ALLAN,
ARTHUR H. MERRITT,
J. MORGAN HOWE,
Committee.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of the Institute was held Tuesday evening, October 6th, 1908, at the Academy of Medicine, No. 17 West Forty-third Street, New York City.

The President, Dr. Charles O. Kimball, occupied the chair.

The President.—We have with us William P. Woodbury, of Boston, who has just come from the Tuberculosis Congress at Washington. He has a brief paper which I will ask him to read, and he will also give us a statement of the work done in Boston.

Dr Woodbury.—I want to read to you the paper read at Washington. It is lamentable that a medical man was called upon to read this paper, but I think the entering wedge has been placed, and in congresses hereafter dental men will have representation. The matter of tuberculosis in this connection is so important, and the policy to be followed in our work so important, that I felt I wanted you to know exactly what had been done, and to get a frank expression of your opinion as to the fitness of this kind of work. The tuberculosis people have a well defined and organized movement, and for success in any movement in oral and dental hygiene we ought to take advantage of the popular ear which they have obtained for us. Then we can carry on our work—which is mostly in school hygiene.

Before I read the paper, I will send around these models and photographs which were used to illustrate the paper, the title of which is "The Importance of Oral and Dental Conditions of Tuberculosis."

(For Dr. Woodbury's paper see page 285.)

Dr. Woodbury.—Dr. Merritt wanted me to say a few words about the organization of the Dental Hygiene Council in Massachusetts. This paper is one of the results of our work. Through our organization came this invitation to read a paper at the International Congress on Tuberculosis in Washington. We have a traveling oral hygiene exhibit, which is being received very favorably. It tries to teach in a popular way the necessity for the care of the teeth, and at the same time educate the medical men on this important subject. We are trying to reach the result in three ways—by literature; by popular talks, and lantern slide lectures; and by the traveling exhibit. The organization is finding its usefulness, and the best representatives of school hygiene are anxious to endorse the movement. The National School Hygiene Association is eager to publish this work, and the Committee of One Hundred (Professor Irving Fisher, of Yale, is president of the Executive Committee), wants to help in the work, and others want to co-operate. The work has been going on for less than a year—the dental hygiene council being organized December 23rd, 1907—and this is the result in this short time. We want the New York men to take up the same kind of work, and co-operate with the Boston men—to be co-workers with us; and we want to give you the credit of what you have done here. William H. Allen was the pioneer here, and he has done splendid work. Our inspiration all came from him, and we want to work with you along broad lines and carry on a crusade which will be effective.

The President.—This paper, which was presented to the Tuberculosis Congress by a physician, could not have been better put by a dentist. We are to congratulate ourselves that our work has been represented so fairly, and so justly, by a member of our allied profession.

We will be glad to have some discussion on the matter.

Dr. A. H. Merritt.—Some present do not know that the Dental Hygiene Council of Boston is perhaps the most thoroughly equipped organization for the carrying on of dental education in its relation to the public. Dr. Woodbury in his paper which he read at Washington, was the only one who made reference in that Congress to the relation existing between the oral cavity and tuberculosis. While there were long discussions in reference to bovine tubercle bacilli and human tubercle bacilli, not one word was said concerning the importance of a clean mouth and its relation to tuberculosis.

It is a privilege to have presented to us the article which Dr. Woodbury read there. It is the purpose of some of the New York men to arrange for a similar organization to that which is being carried on so successfully in Boston, of which Dr. Woodbury is the organizer. I am heartily in sympathy with the work being done there.

Dr. H. L. Wheeler.—I want to call attention to something which has not been noted regarding the Dental Hygiene Council in Boston. It is not only composed of dentists who are working heart and soul along the line of preventive dentistry, but also of leading charitable workers who are interested in sociological and charitable questions. The laity and the profession are working together, and those in New York who are working along the same lines feel they would like to have not only dentists interested in it, but also those who are interested in the poor and unfortunate of our city.

Dr. E. A. Bogue.—Dr. Woodbury has called attention to the fact that the mastication of food is the first step in digestion. I have been in communication with two eminent dental practitioners this summer, who take entirely opposite views from each other, one advocating the extinction of dental decay by preventive measures, the other by immediate treatment for the poor who only come when they are in pain, and his immediate treatment consists in the extraction of all the temporary teeth. For instance, a child of six, whose first permanent molars are just erupting, presents with a temporary tooth decayed, painful, difficult to chew upon. The treatment is the extraction of every one of the temporary teeth. This gentleman who advocates the prevention of dental decay, through early treatment—principally food and diet, has quarreled for a long time, as scientific men quarrel, with the other one, until at last he was persuaded to see the results of this work. He assured me that after seeing what had happened in five years, he was pretty nearly converted to the view that more mastication was performed, and more good health attained by the extraction of all the temporary teeth, than could possibly be gotten by their retention in an imperfect condition. He was careful to say if the temporary teeth were in perfect condition, every effort should be made to keep them so. I throw this in as the ferment, that the gentlemen may consider it in connection with this particularly interesting paper which has just been read.

The President.—We will now listen to Dr. W. B. Dunning, who will read a paper entitled: "The Use of Paraffine in Filling Root Canals."

(For Dr. Dunning's paper see page —.) 291

Dr. Dunning.—In making this mixture, some caution is necessary as the zinc oxide is very heavy and sinks at once to the bottom. The best plan is to mix half the quantity and allow it to become fairly cool, so that it resembles soft dough, and then knead in the rest of the powder, otherwise an uneven mixture with the powder at the bottom would result.

I have spun out a little glass tube simulating a root canal, which I have filled and by looking through the glass the material may be seen at the extreme end.

The President.—Dr. Dunning's paper is now before the Institute for discussion.

Dr. M. L. Rhein.—We all have been interested for the past few years in this work of Dr. Dunning's, and it takes a great deal of courage to go ahead with a new method of filling root canals. I have been personally much interested in the possibilities of this material ever since it was suggested a number of years ago, but have not had the courage to attempt its use in my practice up to the present time. Its possibilities are very enticing, and I have the very strongest hope that it may be the best filling material for roots we have. This, however, has not been proven as yet. What is the proof that we require in order to demonstrate to the profession the correctness of the position which Dr. Dunning has so admirably stated to us this evening? There is no contradicting the point made by the essayist that it is essential that root canals should be hermetically sealed from their very end to the pulpal chamber. I have always contended that it is far better to have a root filling material permeate the end of the root a short distance than that the least portion of the end of that root should remain unfilled, because it requires but the minutest portion of organic material left in the unfilled root space to prove a suitable focus for infection under proper surroundings and conditions. If this is correct, the first esseniial in a root filling material is that it should be the most compatible material possible with the tissues in the apical region, and it is on this merit that gutta percha has held its own so strongly. We know, as dentists, that we have no material that the soft tissues take to so kindly as gutta percha, just as on the other hand, we realize the irritating properties of almost every other material that has been used for this particular purpose

The compatibility of this material—paraffine—is a question that has not yet been settled. Perhaps the main point at issue is the question of whether as a root filling material it is to be absorbed by the system as has been found to be the case in other parts of the body. If we can prove that root fillings made of paraffine will remain without such absorption, its superiority is almost a foregone conclusion; but this is the thing that must be proved.

The essayist speaks of confining its use to normal teeth in which the foramena are not large. This seems almost an impossibility, outside of that limited portion of pathological roots that it is our duty to fill at certain times, where the formation of the root has improperly proceeded, and where we have a clear and well defined large opening at the end. In all the other cases it is impossible to know whether we have a foramen that is of such size that materials can be forced through or not.

For my part, I look upon the root canal through which, under proper pressure and conditions the root filling material cannot be forced as the abnormal root canal. I believe those foramina ought to be very minute, and yet so existing that pressure will force the filling through the end. It is when consolidation and organization of inorganic matter has thoroughly occluded these that we obtain the abnormal state.

I do not know what the preparation that the essayist passed around as an evaporated chloro-percha solution is made of—what form of gutta percha is dissolved there but it varies distinctly from the solutions I make from base plate gutto percha. In the solutions of base plate gutta percha which I have seen dried down frequently, there has not been this amount of contraction, the chloro-percha always having been tenaciously adherent to the walls of the bottle.

The essayist's objection to the use of chloro-percha as a root filling material, based upon this principle, I do not agree with, because I think the simile is poorly taken. In a glass tube or bottle we have a perfectly smooth surface, whereas in the canals of a tooth properly prepared we ought to have the open ends of the microscopic tubuli of the teeth which are ready under the proper conditions to absorb a certain amount of whatever material is forced into that root canal, and which on examination does show such a condition, and it is for that reason that his simile is not well taken. Every properly inserted filling of chloro-percha must penetrate the tubuli to a very considerable extent and what subsequent contraction might take place through imperfect technique, to which we are all more or less subject, cannot be sufficient to produce any injury to the peripheral sides of the canal, because its tenacious adherence must keep the tubuli sealed.

The author cites the unpleasant odor resulting from gutta percha fillings which have been removed. My reply is that such odor is due entirely to the faulty technique of the operation after the gutto percha has been properly inserted, we will say. This absorption of impurities by gutta percha, however, well packed, we are ready to admit, is one of the faults that gutta percha possesses. This can always be overcome in a root canal filling if the subsequent steps of the operation are well taken. When a properly prepared root canal has been filled with gutta percha in such manner as to hermetically seal it, we have nothing to fear from the apical end of the root, if everything has been sterile; but the point we have to fear is the entrance through the pulp chamber or the crown of the tooth. This is now prevented by covering the chloro-percha filling, not with an ordinary cement, but with the oxychloride of zinc.

As long as the root filling is free from any possible infection, and the tubuli have been sterilized with real germicidal agents then all that is required is a filling material free from any possible infection. The moment, however, we rely upon the introduction in the root filling of a medicament to retain such sterility, we place our reliance upon a more or less volatile material, and there is always possible the arrival of a time when the therapeutic agent has lost its power. Speaking in the personal equation I have placed the greatest reliance on syringing with a solution of bi-chloride of mercury, (the most powerful of germicides), one in five thousand, dissolved in hydrogen dioxide.

We have here from a chemical standpoint, an ideal preparation for sterilizing the entire area. The use of this solution leaves a precipitate of the mercuric bichloride, even in the miscropic tubuli. I have chemically demonstrated this fact by tests outside of the mouth.

There is no question but that the introduction of the root filling material described by the essayist is far easier of manipulation than is chloro-percha, and this will give the material great value, if its permanency can be proven.

Here is the contribution I would like to make to this interesting subject—and it is something I have said to Dr. Dunning many months ago privately, that these cases ought to be radiographed at the time the root fillings are inserted, and at intervals after that operation. This is the only way in which we can learn whether we can successfully accept paraffine as a root filling material in permanent teeth.

I am so interested in trying to see proven the correctness of the essayist's contention that I am personally willing to radiograph any such cases that may be sent to me. I would like to see this question demonstrated in this way. I am using the ray constantly, and I am willing in any class of clinical cases where this is being tried to furnish the radiographs to help demonstrate what I think is the only method we have of proving what I hope can be proven—the permanency of paraffine as a root filling material.

The President.—The offer of Dr. Rhein is a very kind and courteous one. and I hope it will be availed of, because that question of permanency can be settled in that way.

Dr. A. L. Swift.—I will confine my remarks entirely to parafine as a root filling, not referring to any other feature of the question. I became interested in the use of paraffine as a root filling some time ago through the interest of my friend, Dr. Dunning, has taken in it, and began at once making some experiments out of the mouth in the spun glass tubes, as suggested by Dr. Dunning, and in extracted roots. I would then examine them to see what success I had attained in the mere mechanical application of the paraffine with the formula suggested by the essayist. The result convinced me that I could positively seal canals from the apex to the orifice easily and quickly, and I then began using it in the mouth. Of course, I am not in a position to give positive data, but so far as I know I have had good success in the use of paraffine, Dr. Dunning's formula, as a root filling.

I believe, as Dr. Rhein says, that we are anxious to be scientific in this work, and we cannot be positive until we have definite knowledge as to the absorption of paraffine.

I think the suggestion of Dr. Rhein and his kind offer to take the radiograph is one we should all avail ourselves of, and keep him busy, because that will give us a surer proof than any I know of as to the result of our efforts. That the technique of root canal filling can be greatly simplified by the use of paraffine, as suggested by Dr. Dunning, I know, as possibly do many others present. If we can demonstrate positive results I believe it will revolutionize the filling of root canals because of the great ease of insertion and the equal ease with which it can be removed, if for any reason we should wish to remove the filling or crown on account of fracture or for an abutment of a bridge, etc.

Ae perhaps some persons know, I was a disciple of oxychloride of zinc for root canal fillings for many years, but my experience with paraffine has convinced me that its use will have a great future, if we can demonstrate positive results.

Dr. Leo Green.—Without detracting in any way from Dr. Dunning's work, I wish to relate a little history about filling root canals with paraffine by the late Dr. Belden of Berlin, and Dr. Ezra Taft of Cambridge. Dr. Belden had a method of filling root canals with paraffine and salol, and under his instructions, and later under the direction of Dr. Taft, I filled many teeth for the purpose of observation rather than for results. We found the root canals entirely empty when we opened them, indicating of course the absorption of the paraffine. It is possible that our technique was faulty and that the technique of Dr. Dunning, with the admixture of the oxide of zinc, would make it of value. To me it would seem a desirable way of filling the root canals, at least, in temporary teeth.

Dr. Louis C. Leroy.—One point I would like to bring out is that paraffine will not adhere to the walls of pulp canals if they are moist. Is it possible for us to dessicate all pulp canals thoroughly, so we may be sure the paraffine will adhere to them? We may say we can do it with the upper or lower two-thirds, but not with the apical third. There is where our faulty manipulation takes place, if at all. With the use of chloro-percha we have a material which to some extent overcomes the little moisture that may be there. Although this discussion should not devolve into reciting methods of our own, I suppose those who have not used paraffine very much may be allowed to state what they have found of benefit in their practice. In my hands eucalypto-percha and a small percentage of aristol has proved invaluable. I made a statement eight or nine years ago that I had but few failures. I still continue that procedure and am again tempted to make the statement to-night that I have probably fewer failures than the average dentist in the treatment of pulp canals. Paraffine may be far superior, but it is still an unknown quantity.

However, I would like to know something even better than the method I am using, and I would like the doctor to answer the question. The statement made by Dr. Green as to the use of salol and paraffine brought out a thought which I instantly communicated to my neighbor, that probably the salol digested the paraffine; whatever did take place there, is of considerable importance, because if paraffine is subject to dissolution we would like to know it.

Dr. George Emery Adams.—The question of the solution of chloroform and gutta percha is one that has been discussed many times. I do not remember just the date, but it has been shown, and I have seen proof, that the chloro-percha has sometimes shrunken in the canal, and consequently left the filling not perfectly tight, as demonstrated in Dr. Dunning's bottle tonight. It can be seen at any time if any of the gentlemen will prepare a small bottle of it with base plate gutta percha. If it be left so the chloroform can readily evaporate and gutta percha will soon shrink away from the bottle. As it dries out it cracks, and it will rattle around in the bottle, the same as that shown by Dr. Dunning tonight.

After hearing Dr. Leroy make the statement that he used gutta percha in solution with eucalyptol I tried it, and have been using it for a good while, with the addition of the aristol, not only pumping the liquid into the canals, but following that with a gutta percha point.

I have never filled root canals with paraffine. I enjoyed listening to the very able paper and thank Dr. Dunning for presenting the subject.

Dr. Swift.—If one has never tried mixing oxide of zinc with the paraffine he will be surprised to find how much more readily it is handled, and in its semi-cool condition it can be rolled into points which can be inserted cold into the canal. It is much superior in body in many respects to plain paraffine. I consider its use in deciduous teeth as a very great boon.

The President.—We understand that this combination of paraffine and oxide of zinc is melted in with the electrical point, and that it liquefies just as paraffine does.

Dr. Rhein.—I would like to ask the essayist whether it is absolutely essential that the electrical point should reach the very end of the canal; will the filling material pass no further than the electrical point goes? This is a very important question in the technique of the use of this material. I have had no experience with it in the mouth, and it is quite another thing experimenting out of the mouth. Only after we have studied root canal filling with radiograph are we aware how many times we make mistakes. I believe it is possible to go to the end of—when I say every root canal, I except only that small percentage of abnormalities in which it is impossible to reach the ends. A large number of abnormal root canals can be reached to the end if the proper angle of entrance is secured. While I exclude only a very small percentage of roots as unfillable, I am aware from my own errors how frequently we are mistaken when we think we fill the ends of the root canals. If it is necessary that this material should go to the end of the root canal we are confronted by a much greater difficulty than if the material would readily go beyond the end of the canals.

Dr. Dunning.—I sincerely appreciate the generous consideration which has been given this effort of mine. It has been my desire to discuss, not declare, the general fitness of paraffine as a root canal filling. I had reached a point in its use where I felt I needed the help of others. We must all be concerned in the outcome, for if the question of permanency can be favorably settled this should be an almost ideal material for our purpose.

I wish to thank Dr. Rhein for his very fair and exhaustive discussion, and I shall try to answer his questions to the best of my ability. I doubt whether the paraffine can be carried beyond the point of the instrument; but this flexible copper point can be carried as far as any instrument can, and if Dr. Rhein believes that an instrument can be carried to the end of almost any root, then this copper point can be so carried, which is all that is needed. Capillarity is a very important factor in this work, and if the dentine can be heated to such a point that the material will remain fluid, this force may make it possible to send the liquid beyond the instrument point. But this is nothing more than a guess.

In regard to Dr. Rhein's generous offer, he failed to state tonight the very excellent suggestion he made to me a couple of years ago, to mix with the paraffine bismuth sub-nitrate, which is opaque to the X-ray and should not alter the filling.

Dr. Rhein.—I think the oxide of tin will do it also.

Dr. Dunning.—It is important to make this filling opaque to the radiograph, otherwise it would not be practicable to watch the shrinkage. I shall certainly take advantage of his kind offer at the first opportunity.

With regard to the bottle of gutta percha, I think I should speak more particularly. That mixture was a solution of Flagg's gutta percha in chloroform; and as the chloroform evaporated I added, from time to time, a little oil of eucalyptus, the odor of which may have been noticed. That may have had something to do with the shrinkage.

As to the permanency of paraffine as a filling, I have used it generally for about five years. I began by selecting roots, which seemed to me to be, after treatment, in about an ideal condition—that is to say, roots of the sort we all feel a shred of cotton or a piece of wood would suffice for a filling, if carried properly to the end. Paraffine suggested itself in that way at first to me, and I became more and more convinced of its value. I have had occasion to open only two or three fillings since, and I do not know how many times I have used it. I have always found the paraffine as I had left it.

With regard to Dr. Green's case, I cannot say what happened to the salol. Possibly there were some air bubbles, which prevented the thorough filling of the canal, and only a veneer of the paraffine covered the orifice.

As to Dr. Leroy's remarks in regard to the dryness: I do not suppose the canal when "dried," in the ordinary sense of that word, would be found to be dessicated through the entire structure, nor would such a condition be desirable. I have been in the habit of flushing out the canal with absolute alcohol, sopping out the excess, drying with the hot air blast, and then applying this hot wire until the patient feels a dull sensation of pain. Then the dentine is sufficiently dry to catch the paraffine.

Dr. Rhein spoke of enlarged foramina, connected with the point I made with regard to normal canals. My meaning was this: In many cases when we have finished the work of opening the canals we are able to carry the instrument to what we instinctively know to be the end. That is a vague way of speaking, but all know what I mean, and this intuitive perception that we have removed the pulp but have gone no further is often very accurate for practical purposes. Such a canal I should call "normal." We are able to dry it out without finding a trace of serum at the apex. We know there are generally several minute foramina at the end of each root, and when we come to speak in exact terms, as Dr. Rhein generally does, of course those little canals contain a certain amount of living substance; but I doubt if the seared ends of these extremely minute fibrits could exert any influence on the paraffine.

But this is just the point concerning which we have no exact knowledge; hence, the great value of observations by means of the radiograph. I hope that much information may be so accumulated during the next few years.

Dr. Merritt then read a paper entitled "Leptothrix Buccalis," by Theo. von Beust, D. D. S., M. D., of Dresden, Germany. (For Dr. von Buest's paper see page ——). 295

DISCUSSION ON DR. VON BEUST'S PAPER.

Dr. William R. Williams.—I am too much a dilletante in bacteriology to be able to answer authoritatively the question propounded by Dr. von Beust at the close of his paper. My only acquaintance with leptothrix buccalis has been gained from looking at scrapings from the teeth. The paper is the result of a most careful and painstaking study of these micro-organisms. While such detailed studies appeal strongly to bacteriologists, I can not but express surprise that such a paper should interest an audience of practising dentists. I would not for a moment decry such careful papers on morphology, because we know that just such studies in anatomy must precede and make possible theknowledge of pathological effects of micro-organisms, but the thought comes to my mind that such a paper in pure morphology could not find an audience in the medical section of the Academy of Medicine, but would be appreciated by bacteriologists only.

We do not know much of the pathological relations of leptothrix buccalis. Dr. Leon Williams, who is referred to in the paper, has classed it among the acid-forming organisms. If he is correct in this it would be of interest because of the relation to dental caries. In so far as I know, however, his evidence for this is of a rather general nature and he has not demonstrated fully its acid-forming properties.

Dr. George S. Allan.—Two reasons combine to make it impossible to discuss this paper in a satisfactory manner. First, the lateness of the hour, and, second, the absence of the slides on which the arguments of the paper are based. Manifestly the task is impossible of execution, and so only some few generalisms will be attempted.

Judging from the careful way in which Dr. von Buest handles his subject, his evident familiarity with it in all its details, the way in which he assembles his facts and the deductions he draws therefrom it is evident that he makes out a strong case. Whether or not he proves it can only be determined by an equally painstaking examination of the photographs or slides he refers to as proving his case.

An hour or so over the microscope with the proofs themselves would be best of all. It is, therefore, to be regretted that such opportunities are not to hand. Still we can thank the essayist for his able presentation of his case and hope for better opportunities to see with his eyes in the future.

The first thought that impresses one is that the paper indicates that the writer is engaged in original research and so deserves commendation and praise. The profession is sadly lacking in workers of this description—more the pity. When one comes our way we must take him by the hand and encourage him in all helpful ways.

The paper is decidedly technical—not easy to comprehend—

and deals largely in points of morphology and classification of those puzzles of the mouth—the Leptothrix.

Leptothrix are most simple in shape and vary through a comparatively small number of forms, and the non-expert would find it most difficult to differentiate them as he finds them under the microscope. Their most striking characteristic is that they belong to that small group of bacteria that are found only in the fluids of the mouth, or more commonly on the surfaces of dirty carious teeth. The question naturally arises, what role do these bacteria have whose habitat is only the oral cavity? Surely they cannot be without a duty to perform. They must have a place beneficent or harmful in the economy of nature, and so it seems possible that they may so modify or change the fluids of the mouth—the environments of the teeth—as to account for some of the strange things found therein.

To us dentists the question of questions we want answered is: Why is it that some teeth in some mouths decay and in others do not? Why in the same mouths does the rapidity of decay vary so much, the patient's condition remaining the same so far as we can see and the teeth the same, of course? What is it that so modifies the saliva that at one period of life the environments of the teeth seem all bad—at another all good, and no other changes in the physical condition of the individual apparent?

Again, we know that many bacteria of many kinds other than those that affect the teeth are found in the saliva. Some are pathogenic, others not. They can be separated by pure cultures or better by inoculation by the saliva. In the mouth (the saliva) they seem to be morphologically the same in all respects as the pathologist obtains from the patient sick unto death with the disease it produces.

Strange is it not? The same and yet not the same and no explanation given.

Again what gives the saliva its well known germicidal powers? Wounds in the mouth heal rapidly and without treatment that out of the mouth would need a surgeon's care or a nurse's attention. No explanation has as yet been given for this happy power. Would it be far fetched to suggest that it may be owing to some of the bi-products of the growth of the bacteria peculiar to the mouth?

Future workers have here a wide field for investigation open to them, full of promise for the good of man and rich in reward. So, without decrying the work done by Dr. von Beust, but awarding it praise only, I can but hope that Dr. von Beust or other laborers may take up the greater questions the mouth offers, and so obtain greater and richer rewards.

Adjournment.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A regular meeting of The New York Institute of Stomatology was held Friday evening, November 6th, 1908, at the Academy of Medicine, No. 17 West 43rd street, New York City.

The President, Dr. C. O. Kimball, occupied the chair.

The minutes of the last meeting were read and approved.

The President—Before proceeding with our regular business, there is a matter which has come to the attention of the Executive Committee, and I will ask Dr. Wheeler to present it to us.

Dr. H. L. Wheeler—I do not know whether all here know that Dr. Taggart, who has invented a very fine machine for making cast inlays, has taken out a patent—not on the machine, but on the process. Early last spring, without previous warning, he began suit against Dr. Boynton, of Washington, D. C., who was making gold inlays with the Jameson machine—a machine manufactured by Klewe & Co. In Washington they have appointed a committee to take this matter up and they have sent out circulars asking for support in attempting to prove invalid this process patent. I wrote to Dr. Finley, who was on that committee, asking for information, and he forwarded me a copy of the papers of the suit, a copy of the patent which Dr. Taggart has secured, and information as to what the committee were doing. The Executive Council of the National Dental Association has passed a resolution upholding them in their action, but they need funds, and it is unfair for the profession to stand by and see Dr. Boynton fight this matter alone.

It certainly looks as though Dr. Taggart intends, if he succeeds in securing the patent right, to make the profession pay for it, as the bridgework people did and as the old vulcanite people did. Dr. Finley informs me in his letter that they have found this process was used as far back as 1848, when patents were taken out for using the same process in making statues. Since then they have found it was used in various arts besides dentistry, and he thinks the patent will be proven invalid, but it will take money to carry on this case. I bring it before the Society thinking it may be well for the Institute to offer its support in a practical way.

Dr. S. E. Davenport—The present occasion would seem to be favorable for the Institute to take a stand against the too common practice of dentists patenting a method or a process. Would not the majority of Institute members consider the patenting of a process by a practicing dentist to be unprofessional and unethical? There are probably many Institute members who would go further than that and who believe that the patenting of not only a process but of an instrument or an appliance would suffice to prove a commercial, rather than a professional position.

I desire to offer the following motion:

That the Institute empower its treasurer, Dr. Gillett, to send Dr. Finley, of Washington, D. C., twenty-five dollars ($25) for use, if needed, in the defence of Dr. Boynton in the Taggart suit, and to aid in the effort to have the patent upon the so-called Taggart process declared invalid.

This motion carries with it the Institute's official protest against the patenting of any process by a practising dentist.

Motion seconded by Dr. Merritt, and carried unanimously.

INCIDENTS OF OFFICE PRACTICE.

Dr. A. H. Merritt—While on my vacation this summer, because of my interest in the work being done by the Pure Food Laws in its relation to proprietary medicines, I sent to the Department of Agriculture for a report of their work. Thinking it might be of interest to the Institute, I prepared at that time a little resumé of some of he facts, which I will read.

A short report relative to the internal operations of the Pure Food Law in its relation to proprietary remedies may be of interest, and certainly will be an encouragement to the members of our profession, who have labored so long and so earnestly in the interests of ethical medicine.

This law has been in operation a little over one and one-half years. During this time over seven thousand samples of foodstuffs and drugs have been collected in various parts of the country for the purpose of inspection.

An analysis of these samples has shown that there were no less than one hundred and seventy-six cases of violation. These have been referred to the Department of Justice for prosecution.

Three court decisions, sustaining and upholding the law, have already been issued by the Board of Food and Drug Inspection.

On July 2nd, 1908, in the City of Washington, D. C., over one thousand packages of proprietary preparations, manufactured in New York, were seized and held for examination. Among them were articles with labels such as these: "Fertilizer Tablets," (a specific for the cure of all kinds of gastric disorders and obesity), "Hair Grower," "Blush of Youth," "Skin Food," etc. These goods were condemned, it being declared that they were misbranded, as they possessed none of the remarkable virtues ascribed to them on their labels.

The law in such instances compels the manufacturer to not only label the preparation so that the exact nature of its ingredients shall be known, but at the same time prohibits the making of statements relative to its therapeutic value, which have no substantial basis in fact—a feature in the application of this law which I think many of us had failed to grasp. The result has been, in the brief space of eighteen months, to reduce the adulteration in drugs not less than fifty per cent.

With an awakened public conscience, the time is fast approaching, nay, has already come, when the medical and dental professions can no longer, in their ignorance, or indifference, afford to be the partners of the unscrupulous manufacturer in the vending of these nostrums.

Any person who prescribes a preparation, the exact nature of which is unknown to him, no matter what may be its therapeutic value, is guilty of prescribing a nostrum. If we accept the definition given of nostrum as "any remedy, the composition of which is kept secret," then we should as professional men resolutely refuse to prescribe or employ any article, the exact formulae of of which is not given. The writing of one's own prescriptions is the only insurance against the nostrum evil, and is one which every self-respecting physician and dentist should employ.

The President—We thank Dr. Merritt for bringing this before us.

Dr. Davenport—I think the President has done well to commend Dr. Merritt for bringing this forward in the concise way in which he has, and it seems fitting that it should be brought before us to-night, when our essayist happens to be Dr. Squires, who has preached this for a long time with a great deal of quiet determination, and who has probably done more to call attention to this very great evil than any one man in our ranks.

The President—We have with us our friend, Dr. Squires, of Somerville, Mass., who will read a paper upon the subject, "The Dentist's Duty toward Ethical Medicine."

Dr. G. B. Squires—I consider it a great compliment to be invited to read a paper before this Society. That sounds commonplace—but I mean more than that—I mean I have a great admiration for this Society—a society that has the courage of its convictions—a society that when the old journal that used to publish its proceedings ceased publication, did not take the path of least resistance and send their matter to a trade dental journal, but said: "No, we will send our matter to a professional paper, even if we have to publish one ourselves," and this is just what you have done. You have put your hands in your pockets and started a professional journal, and I am proud of that, and am glad that the profession in Massachusetts has helped you along.

That is one reason why I selected this subject. I thought a Society that was interested in a higher plane of dental journalism would be interested in a higher plane of dental medicine. I do not make these remarks to forestall criticism—on the contrary, I invite criticism. I am open to conviction.

After the remarks of Dr. Merritt, however, I do not know whether this paper is appropriate; perhaps there is not a man here who prescribes a tooth powder, or a mouth wash, or uses either unless he knows exactly what is in it. If so, this paper would not apply here.

Now, I want to say something which is not exactly a criticism, but rather a query—I wondered why we have done more in Massachusetts in getting recruits for The Journal of the Allied Societies than has the Institute.

Perhaps this Society has done as much work as we have and the results have not yet shown; but since the Journal started, we have brought in quite a few societies—the Metropolitan Society first, and then the Boston and Tufts last year, and best of all, last June the Massachusetts State Society, the Council voting unanimously to have its proceedings published in The Journal.

(For Dr. Squires' paper see page 000).

DISCUSSION ON DR. SQUIRES' PAPER.

Dr. J. Howard Reed—In these days of political and professional independence, I am glad to say that I can discuss the paper of Dr. Squires unfettered. I have no intention of dealing with with the word "ethics" in the form of a symposium; but a good standard definition is found as "the science of human duty, the science of right and of right character and conduct." Certainly, gentlemen, it was a foregone conclusion on the part of our school preceptors that we were possessed of well grounded theoretical ethics at the time they conferred on us a learned degree, making us members of the fraternal order of medicine; and as practice makes perfect, the well-schooled practitioner has become a master in practical ethics.

I am heart and soul with the essayist in his incisive methods of dealing with the frauds and deceptions that we only have ourselves to blame for, practically having nurtured and maintained them. As early at 28 years ago, a certain proprietary mouth wash was generally and generously prescribed by the dental profession and used by the few prominent throat men at that time; but in later years the management followed such an offensive policy towards the ethical professions, that I doubt now if a man in this room writes it to-day.

There are several important and interesting factors which must be squarely faced. First, there is a prevalence in this and other coast cities during five months of the year of catarrhal mucous membrane conditions of mouth, nose, throat, larynx, pharynx, etc.; and the lay public, in the mass, will continue to clamor at the department counters and worse for their special cure-all; while we, like Michael Angelo, may jump around among the stones in the quarry and by chiseling away a little at each stone, eventually let out of one or all the angel of truth. Second, what a change in the drug store situation in the past few years!

The genuine, legitimate and outright pharmacists are few and far between, and the largest number of the drug stores, so-called, have degenerated into cigarette stands, Saturday night candy counters, kodak specialists, etc.; and a prescription finding its way into these cut-throat shops, leaves hope behind; for substitution and not restitution is the vogue. Third, look at our College of Pharmacy in this city, and its dwindling classes of students! Can we expect many high ideals in this direction, when the magnificent reward offered to its graduates is the princely sum of $15 a week for a slavish vocation? Fourth, the trouble with most of us is that we are not well practised prescription writers; and fifth, men of high standard in the healing art, of the writer's personal knowledge, constantly prescribe made-up preparations of merited worth and quality, many of them made from formulas approved and followed by some of the most ethical medical authorities.

I advance these facts, not at all pessimistically, for I take it that we war against quack and fraudulent dental medicines and the truth against them is mighty and must prevail. I have always had a desire to glance behind the scenes, but the essayist has made the vision clear by entirely removing the scenery and calling the names of the bad actors; and if we believe in the "science of right and of right conduct" we must rise in our dignified might and throw off this grafted growth which has fastened itself upon us without our full consent. We can equal the foreign missionaries at once and begin with the children; and extend charity towards the youth and inexperienced of the profession, who in a weak moment wrote the cheap testimonial.

For over twenty-five years I have been fortunate in having only two chemists who have worked with me on lines suggested to us to-night, and I have great hope in progressive food laws.

Thank you, Dr. Squires, for your instruction in "The Dentist's Duty Toward Ethical Medicine," and I trust we will always honor the pioneers who blaze the way.

Dr. H. S. Vaughan—I am glad to have read Dr. Squires' valuable paper as it is along the line of the work already taken up by this and the other societies that support the Journal of the Allied Societies.

As stated by the essayist, the trade journals are largely responsible for the spread of dental nostrums, though I think that the more potent cause lies in the fact that the profession as a whole is too ready to accept the information furnished by the nostrum makers.

Certainly every reputable dentist should give his own prescriptions for tooth-powders, mouth washes, and other preparations that he uses, and when using drugs by hypodermic oral administration, he should know the exact amount that the patient is getting. Quoting Roberts, "The man who puts an unknown dose of an unknown drug or poison into the circulation of a trusting patient, is worse than a quack; he is committing a breach of trust." One reason for the use of secret preparations lies in the fact that so many students slip through the colleges without sufficient training in materia medica, therapeutics and prescription writing. Then again, a man with sufficient training may find it much easier to use some one's abscess cure, local anesthetic, pain reliever or pyorrhea remedy. Thus, instead of advancing and broadening his knowledge by personal observation on the action of known drugs, he works in the dark by using some preparation, the contents of which he is in total ignorance. The influence that the student receives will determine his attitude towards this question. In college he often finds his demonstrators using and advising secret preparations. The same is true of much of the literature of the average dental journal.

Another factor is the prominent place given the nostrum maker in dental conventions. I regret to say that a large percentage of the dentists who attend, will spend more time learning the virtue of secret preparations, than from scientific papers and demonstrations; and will go away more burdened with gratuitous samples of these preparations than with scientific konwledge.

To the reader of the literature that accompanies many of the nostrums, it would seem that the manufacturer had secured some agent of great curative power, unobtainable by anyone but himself, or, by some combination of well-known drugs, has produced a new and original compound which retains the virtues and discards the objectionable features of these drugs.

Such wonderful combinations exist only in the fertile imagination of the nostrum boomer, as will be plainly seen by anyone who follows the work of the Council of Pharmacy and Chemistry of the American Medical Association.

To be less optimistic,—what is to be expected of the rank and file of the dental profession, when men who have been looked upon as occupying high places are either patenting appliances and methods in connection with all branches of dental science, including dental pharmacy, or are engaged in exploiting secret preparations; then again, others turn to the offering of commissions and other forms of graft.

In conclusion, let me say that there are no wonderful curative drugs accessible only to the maker of secret preparations, and if the conscientious practitioner will only give the subject a little study and prescribe for the individual conditions as his best judgment dictates, he will, as Dr. Squires has said, be serving his patient, increasing and broadening his own knowledge and that of his profession, and, at the same time, assist in the elimination of one of the most commercializing factors with which the dental profession is confronted.

Dr. H. L. Wheeler—Before I read what I have written, I would like to say that in speaking of proprietary remedies I have not in mind remedies like the famous productions of Squibb, where men have made a reputation for excellency of production, and in no case is their product secret or anything they produce secret. Neither am I considering many of the synthetic remedies that have been used successfully by the medical profession. Nor do I condemn those remedies of which the formula is known in which the manufacturer has adopted a copyright name for the same. In such cases the manufacture of the product is known, and the manufacturer depends upon his superior method of manufacture, and purity of the article.

It seems to me that the dentist's duty towards ethical medicine may be summed up in the question: What is the dentist's duty to his patient? If the patient's welfare and interests are better served by proprietary remedies than by medicines of known formulae then we are justified in recommending the proprietary or patented article; if our patients are not the gainers by such a proceeding then we are lending ourselves to the proprietors and assisting them in perpetrating a fraud to the hurt of our patient and ourself.

Who can believe that this careless and ignorant advocacy of an unknown and uncertain mixture has or can possibly be made to have, any advantage over a known and tested formula? The claim that manufacturers of patented and secret products produce a better and more scientific mixture is not only *not* borne out by the facts but the situation is exactly the reverse. In patented products the aim, based largely on a desire to secure inordinate profits, is to prevent any other article being made that contains a certain class of substances and having succeeded in doing this by obtaining a patent, I know of no case where the cheapest and least desirable ingredient of a class has not been used to the cheapening of the product and the hurt of the user. In the case of the secret nostrums the evidence, so far as I have been able to secure it, shows that secrecy of formula is maintained not in the interest of the exploited public but purely in the interest of the exploited producer. I have also observed in numerous instances that the stamp of a large and well-known firm is not necessarily a guarantee of excellency of product nor stability of formula.

These supposed reasons for using a proprietary product, viz., superiority in manufacture and accuracy of formula, are, unfortunately, rarely to be found amongst products supplied to the dentist free, furthermore, this free distribution of remedies, powders, etc., simply amounts to the using of the dental office where they are received and exhibited as a salesroom rent free, rather a heavy price to pay for medical and toilet solutions of unknown composition. Attention can not be called too often to the fact that secret formulae and patents in medical mixtures are quite often used to secure excessive profits as to produce a superior article. Prof. Osborne of Yale, has recently asked, speaking of proprietary remedies, "Is it justifiable for a physician so to belittle his profession and forget rationality in his treatment of a patient, to say nothing of the enormous graft which he hands the proprietary firms, from the pockets of his patients, by ordering proprietary mixtures."

"I do not believe that the physician who orders such a preparation realizes the positive harm he often does his patients, in some cases almost amounting to criminal negligence." He also expresses the opinion that to prescribe a remedy where the ingredients are not known, is little less than malpractice.

Of course, one difficulty with dentistry is that many seem to think the patient is paying them for definite mechanical work and restoration instead of opinion and advice and ability to properly apply these. We must remember that the difference between the professional man and the artisan and tradesman is simply one of product. Are we supplying another with advice and opinion as to the needs of their physical welfare, that has taken us long to acquire the necessary knowledge to give, placing the emphasis on the fee being for the value of our opinion and knowledge, or are we selling dental supplies and throwing in the amount of time and skill taken to place them as a chromo? The first is the professional man, the second the tradesman.

If, then, we get paid for our knowledge and advice and then furnish a nostrum which is prepared for exploitation purposes to a patient, are we not shirking our responsibility and defrauding the patient? This should not prevent a dentist from trying a new material, provided he knows its composition, but it should prevent him from using a new material merely on the say-so of the manufacturer or the professional chemist whose written opinion has been well paid for, and who is justified in making an analysis when the physician and dentist *are not* justified in using the material.

Note the number of gout-curing preparations where fraud and credulity are rampant.

Good physicians fully understand the absolute falsity of the urate-solvent promises and good dentists should do likewise and protect their patients from a useless expense and possibly a physical injury. Our medical brethren in some sections of this country have become so sensitive on this point that some societies have warned their members that if they did not stop prescribing proprietary remedies they would be dropped from the society. Up to the present the minds of a vast number of dentists have been so warped by the commercial surrounding of their primary dental training that they do not realize the enormity of the offense against patients, which they commit when they carelessly recommend these pleasant tasting powders and washes, most of which are worthless or worse.

The criticism has been made in regard to Dr. Squires' tooth powder formula that the expense of having it made by the average druggist is so great that it is practically prohibitive for the average dentist to give to his patients. Unless arrangements are made with the druggist beforehand, that may be true. I feel justified in recommending to my patients that they buy a pound at a time. I have taken the liberty of changing the quantity of Dr. Squires' formula to such an extent that when I order it my patient secures about a pound of the material. The druggist I have gone to, Larimore & Co., 537 Fifth avenue, has agreed to put it up in lots of about one pound, in tins, for 85 cents, and in glass for $1.00. That makes it very much cheaper than the powder which is bought on the market in small quantities. I have found that is satisfactory to my patients and myself.

The formula I have changed as follows:

Precipitated chalk	℥ xii	instead of	℥ vi.
Sodium Perborate	℥ ii	instead of	℥ i
Pulverized soap	ʒ vi	instead of	Gr. xx.
Oil of Gaultheria (true)	ʒ ii	instead of	m. xii.

The powder is extremely satisfactory, I know.

Dr. Merritt—I do not believe anyone can do otherwise than endorse every word of the paper that Dr. Squires has brought to us. One feature I listened to with interest, and that was his statement of the relation which exists between the nostrum vendor and the public press or the dental journal, and the attitude of the dentist in protesting against the same. How effective it would be if such protest were lodged with the publishers of our dental journals, I do not know; but I believe it would avail little. As for the average commercial man, trained as he is in commercial life—it is absolutely outside of his comprehension what we, as professional men, mean by ethics. They do not seem to grasp the difference in the atttitude of the professional man towards these things. Perhaps no better illustration of this could be had than a little experience I have recently had with the "New York Times." Those who read that paper may have noticed the advertisement of a notorious charlatan in this city. About once a week this advertisement would appear. I think I saw the first one about the first of September, and on September 10th I wrote them calling attention to the fact that they had asked their readers to inform them of any advertisement which they knew to be of a fraudulent character. I did so, saying I thought they were being imposed upon, and I gave them the address of the attorney for the Dental Society of the State of New York. They replied to me courteously, saying they would investigate the matter. As the advertisement still appeared from time to time, I again wrote them on my return, and found that they had been to the office of the attorney in question, and had been shown their records in relation to this same quack. They wrote me at that time at considerable length, saying they had sent their most trusted employee, who had investigated the character of the advertiser, and he had reported that he saw nothing in it which was fraudulent in character; but that they would again investigate the matter, and if found to be so, they would exclude it from their advertising columns. I have spoken to some of my acquaintances about this matter, saying that if they approved of it, I hoped they would lodge a protest with the editor of the "Times," and some of them have done so. Their claim is that because this individual is qualified and licensed to practice in New York, he must be reputable, and that they are therefore justified in publishing his advertisement. But that they are aiding him in his exploitation of the public, there is no question, though that fact would appear to be outside of their comprehension.

I speak of this as an illustration of the fact that such people do not make any distinction between professional conduct and the conduct of men engaged in commercial pursuits.

Dr. S. H. MacNaughton—If that prescription of Dr. Squires' were made into a paste with glycerine, would the oxygen be set free, or not?

Dr. Squires—I think it would be gradually set free. I think there is enough water in the glycerine, perhaps, to do that. Someone asked me that to-night, and someone suggested glucose. Sometimes that is used to make a paste, and I think glucose would be less likely to decompose it; but I cannot speak authoritively either way.

Dr. Reed hit the New York druggists rather hard, and the only thing I can say is that they do not compare then with the Boston druggists. I can name them by the dozen, in Boston, who will put up a prescription exactly as written. The law is very strict. If it thought that a druggist is substituting, the Board of Pharmacy, or the Board of Health, if notified, will take care of him. Give them the product and they will analyze it.

I did not know the classes in the New York College of Pharmacy were decreasing. I understood they were increasing. Beginning this year, I believe, only Ph. G.'s can take the State Board examination, so the standard will be higher than before. The Massachusetts classes are not decreasing, although they are not increasing much. Clerks' wages must be smaller here than in Boston. When I left clerking I was getting $26 a week, and there were men getting more than I was. A graduate in pharmacy can get more than $15 a week. There are not enough Ph. G.'s to supply the demand. If they cannot get the wages in New York, they can in Boston.

As for medical men prescribing nostrums, they do not begin to prescribe as many as do dentists in proportion to numbers. The Philadelphia League for the extinction of nostrums shows that the percentage in the last two or three years, prescribed by physicians has dropped greatly. Something like 60% less is being prescribed now.

I was quite amused at what Dr. Vaughan said about men taking home the samples from conventions. That has always struck me as childish. I have seen them walking away with samples under both arms. I was amused at the National meeting in Boston to see men carrying gylco-thymoline, for instance. When the man asked me if I were interested in it, I said I did not prescribe nostrums. He asked why I called it a nostrum, and I said: "You do not publish your formula." He said: "We do." I then said: "Show it to me. You give the ingredients, but not the quantities." They claim it makes no difference, as long as we know the ingredients. Does it not matter to us whether a preparation contains one dram of something to an ounce or one dram to the gallon?

Dr. Wheeler speaks of Squibb manufacturing proprietary preparations. Squibb does not. We may know exactly what a patented remedy contains by sending to the Patent Office for the formula. Calox is a patented preparation. Proprietary means secret. In other words, is synonymous with nostrum. Squibb makes pharmaceutical preparations, principally. A trade name with a published formula, is used by a firm to advertise its particular preparation. Others could use the same formula, but could not use the trade-name. John Wyeth says: "We claim no proprietoryship. Merely the skill and carefulness with which our goods are prepared." They do not even use a tradename. Such are called ready-made preparations.

There are some patented preparations which we use. Most of the synthetics are patented, but not secret. A process may be patented, but if they are open, it is ethical to use them, although some physicians (and Dr. Squibb is one of them) do not like to prescribe either a trade-named or patented preparation.

Some say it is all right to prescribe a proprietary medicine if it does good. How can we say that the medicine does good, if we do not know what we are using?

As to the expense of the powder, I was quite surprised. It must be much more expensive here than in Boston. Metcalf & Co. put up my powder, and only charge twenty-five cents a bottle. Of course, the patients could have it put up in larger quantity and instructed to keep the surplus in a dry place.

Dr. Merritt questioned whether it would not do good to protest to the journals. You cannot compare a paper like the New York "Times" with the dental journals. These dental journals know what is in the air. They know what the dental men are doing, and if enough of us put in our protest, it would bring results.

Perhaps the right person may not be reached when writing to certain newspapers, but if such a letter as Dr. Merritt wrote be sent to Bok, or some others, they will pay attention to it.

In the local paper in Winchester, they were carrying advertisements of such things as "Lydia Pinkham's Compound" and "Swamp Root." I sent the editor the pamphets of the great American fraud. I wrote him that if he did not discontinue those advertisements, I would call the attention of every medical man in town, and every woman of the W. C. T. U. and also of the Fortnightly Club to them. I received a letter from him by the next mail, in which he said he did not intend to carry anything that was objectionable to his subscribers. He said he had a contract with those people, and did not see how he could break it at once, but I know he wrote to those concerns, for I saw a letter from the "Swamp Root" people saying that they regretted it was necessary for the paper to drop their advertisement.

If every member of this Society would write to the dental journals and promise to drop his subscription unless certain advertisements were thrown out, out they would go. That is how we saved Niagara Falls, and got the Pure Food Laws. We think one protest is so small it does not amount to anything, but if each one would do his duty, the aggregate would be great in numbers and results.

The President—It is not often we have a man come from a distant city and touch us to the quick as Dr. Squires has done. He is convicting us all of carelessness and supineness in this thing. I feel we owe Dr. Squires a great debt, not merely a perfunctory vote of thanks for bringing before us in this clear, simple and explicit way, this matter which has been in the air, so to speak. He has urged upon us a line of conduct about which it seems to me, something more should be said before we adjourn, and more done afterwards.

Dr. Robert Jenkins—I am inclined to agree with Dr. Squires, rather than Dr. Merritt, as to the New York "Times." That paper has been fighting for the physicians. They are .opposed to any change in our laws allowing Christian Scientists, or other sects, to practise, and I am sure they do not exactly understand, as the doctor suggested, what the ethics of the matter mean. They perhaps see no evidence in that advertisement of fraud, and they may think that those who protest are carrying the matter to extremes. But the editor is a business man, and I am sure if he could be shown that the adveritsement is objectionable, he would throw it out.

Dr. Wheeler—It has been my intention to write to the New York "Times," although I have not done so yet; but by accident I came in contact with the "Times" agent to-day. I was very busy and could not talk to him as I wished, but he made this suggestion to the dentist to whom he was talking. He said his department could take no action, unless it was shown to be a fraud, and illegal, but he suggested if two or three of the representative men of the profession were to go to Mr. Ochs, who I think is the proprietor, and whom he said was a very approachable man, and lay before him the grounds on which we considered this advertisement fraudulent, he had not the slightest doubt but that action would be taken.

In regard to the dental journals, I think Dr. Squires' suggestion a good one. In a way the dental profession reminds me of some of the small country communities in which I have lived at one time or another. People are so good-natured that they are afraid to move for fear they will give offense. We have gotten into that way. We do not like to go ahead and do these things for fear of criticism.

Dr. K. C. Smith—It is possible that the societies in New York City might be able to do something to remedy this condition by entering a protest with the colleges as to the teaching of the students, with regard to the use of these proprietary remedies. Also against the lack of teaching of a sufficient amount of pharmaceutical knowledge to enable them to properly prescribe remedies for their patients.

Dr. Wheeler moved a vote of thanks to Dr. Squires for his very interesting paper. Motion carried.

Adjournment.

Massachusetts State Conference

ON

Oral and Dental Hygiene

Under the auspices of The Dental Hygiene Council of Massachusetts, South End House, Twentieth Century Club, Monday Evening Club, and the Dental Societies of Massachusetts.

January 18, 19, 20, 21, 22, 23, 1909

AT THE

TWENTIETH CENTURY CLUB

3 Joy St., Ford and Huntington Halls, Boston, Mass.

The Conference will be opened by a Union Meeting of the Allied Societies, Saturday evening, January 16th, at the Boston City Club, Dr. Eugene H. Smith presiding.

At the various meetings the following will speak:

Louis A. Frothingham
Samuel A. Hopkins
Irving Fisher
Timothy Leary
Jeffrey R. Brockett
William H. Allen
J. Morgan Howe
H. Lincoln Chase
William W. Marvel
Mary McSkimmon
Martha H. Stark
Seymour H. Stone
George H. Martin
Joseph Lee
William H. Potter
Horace Fletcher
Robert A. Woods
David D. Scannell
R. W. Gibson
Thomas I. Gasson
Samuel H. Durgin
William B. Cannon
Alvin Davison
William T. Sedgwick
Geo. S. C. Badger
Eugene H. Smith
Charles W. Eliot

The purposes of this conference are to bring the importance of this vital subject fully and frankly to parents, educators, social workers and philanthropists; to invite the public to an open discussion on dental hygiene and to determine how best to further the popular movement for better care of the mouth and teeth.

You are cordially invited to these meetings and to the Oral and Dental Hygiene Exhibit at the Twentieth Century Club and the Town Room, No. 3 Joy street.

Date Due

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